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## GYNICOLOGY AND OBSTETRICS



JULY 1927

# International Abstract of Surgery

*Supplementary to*  
**Surgery, Gynecology and Obstetrics**

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C e n a t h U n i v e r s i t y f f i w a

#### Eye

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# INTERNATIONAL ABSTRACT OF SURGERY

JULY 1927

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### HEAD

Blair V P and Brown J B. Septic Osteomyelitis  
of the Bones of the Skull and Face. *Ann S S* 2  
19 7 1

The authors discuss only inflammation or death of bone due to infection by a pus producing organism but three somewhat distinct clinical entities are considered (1) the condition commonly called ulcerated tooth (2) frank osteitis and necrosis of the dentigerous bones and (3) the spreading osteitis and necrosis that may accompany or follow pus infection of the paranasal or paraural sinuses.

The reasons for including these conditions in one group are the following:

1. They are each essentially a bone infection and though showing certain individualizing characteristics the pathology is basically the same, the reaction differing in degree rather than in kind and the treatment for each is essentially the same.

2. While the lines that demarcate the typical cases in each group can be drawn sharply there occur apparently borderline cases that are not so easily catalogued and the close anatomical relation of the parts affected facilitates this grouping.

The general plan of good surgical treatment of simple purulent osteomyelitis was firmly established many years ago and except as influenced by the presence of the teeth the treatment of the condition when it affects the skull and jaws differs little from that of simple purulent osteomyelitis of any other bone. Due partly to the superior resistance of the face and mouth tissues to most infections and partly to the readiness with which spontaneous drainage is established around the teeth osteomyelitis occurring in the jaw has not the inherent fatal tendency that may characterize it elsewhere. On the other hand the deformities that result most commonly from ill advised surgery can be little short of ghastly. In certain spreading infections of the calvarium the resulting deformities are not marked but the disease is frequently fatal.

The accepted older treatment of osteomyelitis in general consisted first in the early establishment of drainage of the focus with the least possible operative trauma second in delaying radical operation until the virulence of the infection had subsided the dead bone had spontaneously separated and sufficient new bone had been formed to maintain continuity and in the removal at the proper time of all fragments of dead bone with limited damage to granulations lining their beds and where practicable the removal of all edges of live bone overhanging the bed so that soft tissue could drop into and fill these defects. When this program is faithfully and intelligently carried out the disease seldom proves fatal or progressive and successful sequestrectomy followed by permanent healing is usually accomplished by one operation.

Especially desirable refinements of technique are those designed to raise the resistance of the tissues or to protect the granulation lined cavities from secondary infection or sterilize them by non corrosive lotions. However any radical departure from the basic principles cited is apt to be followed by disaster or embarrasment in one form or another. In late years the older plan of conservative treatment has been subjected to very forceful attacks first by the operating dentists and exodontists and later by the rhinologists.

*Portals of entry.* In the upper jaw the infection may apparently occur by way of the nasal mucosa or antrum. In either jaw it can unquestionably be produced by blood carried from a distance as is common in osteomyelitis in other bones. When infected teeth are present however it may be difficult to draw definite conclusions. Commonly in children the necrosis apparently follows the extraction of a tooth but in at least some of the cases the bone infection may have caused the symptoms for which the tooth was drawn. The occurrence of the symptoms immediately after the treatment of a quiescent non vital tooth suggests a pre existing periapical infection which may have been present for



year The prevent on of decay and of injury to the teeth will possibly prevent quite a large number of *sub* bone infections

In some cases there may occur a low grade bone infection that forms little pus but is associated with moderate pain and swelling This is apt to attack different parts of the same jaw simultaneously or consecutively throwing off a sliver of bone here or leaving a tooth there and persisting for a long time without coming to any definite conclusion or without forming any very definite head for surgical attack Meanwhile the patient may show various signs of intoxication The previous belief that this type of necrosis is dependent on syphilis is not supported as few of the Wassermann tests in the reported cases were positive

In infection of the bones of the calvarium the paranasal sinuses are most commonly the portals of entry

*Healed tooth* The ulcerated tooth commonly represents an acute exacerbation of a previously quiescent periapical infection The attack may terminate or be terminated in one of several ways After two days of suffering an abscess may perforate the bone causing the typical gum boil or less commonly it may burrow out alongside the root of the tooth The dentist may establish drainage through a root canal or attempt to abort the process by extracting the tooth The latter treatment has the virtue of precluding future attacks and may be followed by quick recovery a more or less protracted or stormy convalescence or occasionally by death from general sepsis

An older teaching warned that ulcerated teeth should not be pulled during the period of acute swelling The attempt to establish free drainage and at the same time remove the supposed focus is apt to appeal strongly to some but average results do not justify the extra risk of early extraction Some young or apparently robust persons will die from general sepsis following the extraction of an ulcerated tooth in the acute stage On the other hand death following the conservative plan is extremely rare and except in young children cervical abscess or extensive bone necrosis is uncommon when the tooth and the bone are spared the trauma of instrumentation in the acute stage of the infection

The ulcerated tooth is a culmination of an infection that has been present for an indefinite time possibly years without causing more than mild or undetected symptoms About the simplest explanation is the assumption that a disturbance of the balance between virulence and resistance has occurred which permits the hitherto imprisoned bacteria successfully to attack the confining barrier Such a period of low resistance may be the reason why the trauma of an extraction may not be positively related at this time The time of pain may possibly be shortened by incision and drainage up of the periosteum at the probable site of perforation

At a later period when the balance between virulence and resistance has been reestablished in the patient's favor the extraction of the tooth will be not only safe but better surgery than the most effective dental restoration

In the subacute stage in which discomfort low fever adenitis malaise rheumatism or joint infections may evidence chronic infection extraction is usually necessary but should be done with caution

*Necrosis of the jaw bones* In simple osteomyelitis of the jaw the need for early artificial drainage of the focus is seldom urgent but confined or pocketing collections of pus should be liberated by internal or external incision when detected Hot or cold applications may be used without fear of perforation in undesirable places

The very objectionable odor that may be given off can be controlled by one or two thorough irrigations of all fistulae with a 1 per cent solution of formalin The stinging pain may be modified by a previous irrigation with 2 per cent novocain

In most cases of acute osteomyelitis of the jaw the dead bone will usually separate itself in ninety days and by the end of that time a strong involucrum will have formed that will permit removal of the sequestrum without changing the normal contour of the jaw In instrumental manipulation of the bone of at least the lower jaw before the infection has lost its virulence is very apt to be followed by further extension of the necrosis

The surest way of reducing the necessary number of radical operations to the minimum is to allow a full three months after the original infection before making any attempt to remove the dead bone and then if the dead bone is not found to be worm eaten and surrounded by a definite bed of granulations to wait another three months before making a subsequent attempt

It is known that teeth and tooth buds in infected areas may retain their vitality Therefore in treating necrosis in a child it is best to establish drainage as indicated and watch closely for kidney damage and if the general condition permits to do no radical operation on the alveolar portion but wait for the fragments to be thrown off spontaneously In children dead bone is not apt to become deeply sequestered in the tooth-bearing areas as in the ramus This does not hold true in adults The preservation of the tooth buds is of tremendous advantage In areas where they are completely lost the new bone is apt to be short to the extent of very serious deformity If one first or second molar is preserved it may save excessive retraction of the regenerated jaw but preservation of the third molar bud will not do so

Much more desirable than the removal of tooth buds is the complete lack of regeneration that may follow too early removal of the dead bone or an attempt to control infection by resecting the original bone In one known case the entire lower jaw is lacking as the result of repeated attempts of this kind and failure of regeneration of the mandible

following simple osteomyelitis has occurred most frequently in cases treated by too energetic surgery.

**Removal of sequestra** For the removal of sequestra in the lower jaw the incision is made along the alveolar process or on the skin surface along the lower border of the mandible and part way up the posterior border of the ramus from one side to the other. For necrosis of the ramus in adults and for locating dislodged picules in the sigmoid notch the posterior part of the incision just described is most appropriate.

After the sequestrum has been exposed a curette turned toward the dead bone and not toward the involucrum may be used to slip out the fragments. Before this can be done it may be necessary to chisel away one wall of the involucrum. When the pockets are multiple they must be dealt with individually. Bone scraping is a pernicious practice and is to be deplored even when it is necessary. The curette should be used as a tractor, an elevator, or a tool to carve away overhanging involucrum. The search for small deeply buried spicules may be greatly facilitated by preliminary injection of the fistula with methylene blue solution.

In every case every piece of dead bone must be removed or so treated that it can be discharged spontaneously; otherwise the wound will not heal permanently. It is for the lack of such treatment that many cases remain unhealed for a period of years.

In the upper jaw the sequestra are apt to become buried in scar. It is a better plan to dissect out the scar than to try to find the individual pieces of bone. This is sometimes true in regard to fragments in the neck that have worked down from the lower jaw.

Emphasis has been placed on time consuming conservatism but radical operation may be necessary to dislodge pieces of dead bone in the body or ramus that may be encased by the living bone and remain indefinitely as foci of infection. If after the removal of the sequestrum the pocket in the involucrum is very deep it should not be left in this condition.

The literature still shows the old division between those who advocate early conservatism and those who promise to abort the disease by the earliest possible radical surgery. The position of the latter who are still in the minority is supported by neither new arguments nor an adequate number of convincing case reports.

**Diffuse osteomyelitis of the skull of sinus origin** Most of the recent rhinological literature supports very early and radical operative treatment of the necrosis of the skull bones that may follow or accompany paranasal sinus infections. This reversal of the more generally accepted rules for the treatment of osteomyelitis is not supported by the authors' observations.

The first cases definitely regarded as of sinus origin were reported in 899—one by Luc and one by Tilley—but before that time there were a few reports of osteomyelitis of the skull with practically the same clinical picture.

The radical writings consist of from twelve to fifteen articles based partly on personal observation but largely on citations from an exhaustive article in three parts by McKenzie of London. McKenzie advocated early radical bone removal as did those following him who seemed to base most of their points on his article.

The authors have been unable to substantiate all of their findings by the literature.

Syphilitic cases should not be recorded with these cases. In the authors' series there were six cases of this type, five arising from the frontal and one from the sphenoid sinus. This series is considered rather small upon which to base sweeping conclusions, but of those who have so vigorously advocated early radical treatment none had more than four cases. Twenty-three observers reported in favor of radical operation. Twenty-five of their patients died. Of the twelve who are living five were treated too recently to be considered cured.

Nine observers do not report favorably on the radical bone cutting plan of treatment. In nine cases with conservative treatment there were three deaths. Mosher added one case to the list. Of the authors' six patients three are living but one cannot be considered a closed case.

The authors do not accept the more modern recommendation of early radical bone removal for these cases. Until more conclusive evidence is adduced they will continue to apply the older rules of hygiene, drainage, and the removal of exfoliated bone supplementing them by measures to raise the patient's resistance and general quartz light treatment.

JAMES B. BROWN, M.D.

## EYE

Luedd, W. H. The Mechanism of Accommodation. *Am. J. Ophthalm.* 9:733.

Elasticity of the lens has never been definitely shown. Heretofore studies of accommodation have been made with the idea of supporting either Helmholtz's or Tschernig's theory. Luedde describes accommodation in animals. In fish it is accomplished by a displacement of the lens. Salamanders accommodate by use of the ciliary muscle which compresses the vitreous forcing the lens forward while at the same time the aqueous accumulates at the periphery of the anterior chamber lightly pressing the iris backward. All accommodation ceases when the posterior segment of the eye is opened. In lizards the mechanism is much the same except that there is a circular muscle at the base of the iris which actively compresses the lens as it moves forward. In birds there is a further factor in the pecten composed of erectile tissue which exerts pressure in that body. In seal there is no accommodation after the iris is divided.

In his original article Helmholtz suggested only that accommodation might be explained by his theory. The lens is not a homogeneous mass but

has a definite cortex and nucleus and the zonule is not a membrane but a system of cords. It is almost unthinkable that the lens could be under a constant tension when at rest. Von Pflüger conducted experiments on eyes rapidly frozen with carbon dioxide snow while at rest and during accommodation. In spite of Hess' denial the photomicrographs seem to show that both the anterior and posterior central portions of the lens bulge outward during accommodation whereas during rest the lens is more nearly spherical.

The phenomenon of sinking or shaking of the lens during strong accommodative effort is explained by the thickening of the ciliary muscle during this act with consequent relaxation of the supporting zonular fibers. However the peripheral fibers of the zonule go from the anterior portion of the lens to the posterior portion of the ciliary muscle and from the posterior portion of the lens to the anterior portion of the ciliary muscle. Contraction of the muscle would thus obviously tend to thin the peripheral part of the lens. Human eyes placed in eserine solution after removal show strong traction on the choroid when sectioned. Experiments with subluxated lenses under myotics show that the lens is pushed away from the defect in the supporting fibers which would be expected if the lens were pressed upon by the vitreous.

In conclusion the author states that accommodation may be explained by the extrinsic theory and is probably the same in mammals as in birds. If inherent elasticity of the lens is ever demonstrated it may be fitted in to this theory but its assumption is unnecessary. S. M. L. A. D. R. M. D.

Pinkerton F. J. Leprosy of the Eye. An Analysis of the Records of 512 Cases of Leprosy in the Hawaiian Islands. *A. J. Ophth.* 1917, 4.

Inkerton gives a very detailed account of his experience with ocular leprosy in the Hawaiian Islands. On the basis of 512 cases he draws the following conclusions:

1. Every patient suffering from leprosy will probably have some involvement of the eye sooner or later.

2. The eye is more frequently attacked in the moderately advanced case but the primary corneal change may occur at any stage.

3. In advanced cases it is probably the greatest single cause of blindness.

4. Corneal changes secondary to lesions in the ciliary region and to exposure keratitis are next in importance in the causation of blindness.

5. Falsal fibrillation probably precedes orbital paralysis in most cases.

6. Destruction of nodules from the limbus should always be done once it gives hope of at least a temporary arrest of the process.

7. Internal and external tarsorrhaphy satisfactory in the conservation of the cornea.

8. Atropine in the early iritis is imperative.

9. Cocaine instilled into the conjunctival sac is unsatisfactory as an anesthetic in leprosy.

10. Leprous patients seem to be immune to the ordinary pus producing organisms.

LESLIE L. MCCOY M.D.

Doherty W. B. Malignant Oculi with Microscopic Findings. *J. Ophth.* 9, 735.

Four cases of malignant oculi are reported. In one an anatomical study was made. This condition occurs in various races and in blondes as well as brunettes. As melanosisarcoma developed in 29 per cent of reported cases of melanosis bulbi growing melanotic spots with a well developed blood supply should be removed. One patient a negro had melanotic spots on the right side of the face and a melanotic right eye. He complained of gradual diminution of vision and pain in the right eye. The conjunctiva showed patches of pigmentation spots could be seen at the limbus through the conjunctiva and there was a staphyloma at the nasal limbus. The tension of the eyeball was 77. The appearance of the cornea and iris was characteristic of glaucoma.

Upon enucleation the vitreous was found to be liquid and of an inky black color. Microscopically the limbus was deeply pigmented. The endothelial layer showed pigment granules and red cells adhering to it. The spaces of Fontana and the canal of Schlemm were completely filled with pigment. The ciliary muscle and processes were heavily pigmented. The posterior capsule of the lens was covered with a cyclitic membrane in which were leucocytes containing pigment. The choroid was so densely pigmented that its structure could not be seen and the sclera showed irregular patches between its fibers. SAMUEL A. DUKER M.D.

Lane L. A. Radium in Ophthalmology. A Further Study. Experimental and Clinical. *J. Am. M. A.* 9, 712.

The author urges the more general use of radium and the X-rays in the treatment of intractable lesions of the eye such as glaucoma, corneal psoriasis, tuberculous keratitis, keratoconus, trachoma, etc. A more careful reporting of cases in which radium is used. In this was accurate scientific information can be gathered as to the best method of using radium and the status of radium in ophthalmic therapy. The following outline for uniform data in radium the patients given (1) careful description and diagnosis of the lesion to be treated (2) exact data as to the amount of radium used (3) a statement as to whether radium element or radium emanation was employed (4) the type of container of the radium and its thickness (plaque, steel needle, silver capsule, platinum electrode) (5) the kind and thickness of filter used (6) the duration of the exposure (7) the interval at which the exposure was repeated (8) the distance at which it was applied (9) whether and how it was protected (10) the total dose given.

In her year of experimental study Lane paid particular attention to dosage, screening, immediate and remote clinical changes, the effect of radium on the intra-ocular tension and histological changes. Her experiments were performed on rabbits. The findings in silver tube experiments may be summarized as follows:

There were no permanent injurious manifestations clearly due to radium alone from 15 to 25 mc silver tubes screened with 1 mm of rubber and used for ten minutes once a week at a distance of 2 mm.

Doses of 50 and 100 mc used under similar conditions except as to time and interval were followed by more or less reaction and by changes in the lids, conjunctiva, cornea and fundus. Histological changes were present in the cornea, iris, retina and nerve, but somewhat similar changes were seen in the retina and nerve of the unirradiated eye.

Following the administration of 150- and 200-mc doses there was tendency toward delayed and moderately severe reactions. The lid, cornea, iris and fundus structures showed clinical and histological changes.

Well defined cataracts occurred in the irradiated and unirradiated eyes of Rabbits 1 and 6. The condition of these rabbits was poor. Each had snuffles and showed changes in the blood. Each was eccentric in its selection of food. Each when the general condition improved and the diet was changed showed marked lessening of the lens opacities.

An increase of tens on followed every application and as more pronounced after the larger doses. Eventually the tension returned to the normal starting level.

Control for Rabbits 1 and 6 watched over a period of five months showed no evidence of cataract formation.

Clinically and histologically there was evidence that silver screening which admits considerable beta radiation is injurious to the rabbit eye.

The author concludes from these findings that in the treatment of conditions of the human eye silver tubes have a limited place.

Following experiments every rabbit in the series showed definite changes in the cornea varying from a mild punctate keratitis to an ulcerative keratitis ending in more or less corneal opacity.

All of the rabbits given higher doses there were definite permanent changes in the lids, conjunctiva, cornea, iris, ciliary body, retina and nerve.

A marked increase in tension occurred in the irradiated eye and some corresponding increase in the unirradiated eye of each rabbit.

Except following the 5 mc dose the changes were so definitely of an injurious nature that in the author's opinion the use of radium in bare tubes does not seem justifiable in the human eye except under the most exceptional circumstances.

With regard to gamma radiation with gold platinum tubes Lane reports that the reactions were very slight in rabbits of this series as compared with those in rabbits in the silver and bare tube series.

There was no permanent lid or conjunctival change in any rabbit. Only two rabbits showed any permanent change in the cornea.

There were no lens changes in any rabbit of the series.

Following the 100, 150 and 200 mc applications the changes in the iris were slight and were confined to a few small areas showing some thickening of the vessel walls and slight pigmentary degeneration.

Of the changes in the retina and nerve Lane found it more difficult to speak with certainty since the unirradiated eyes presented similar changes.

The tension was elevated slightly in every instance except one. At no time were the rises as high as in the silver tube and bare tube series.

As far as injury to the eye tissue is concerned it can be stated positively that the gamma radiation in the platinum gold tube series of experiments was followed by less change than was found in the bare tube or silver tube experiments.

The author's final conclusions are the following:

1. Exact data as to dosage method of application and type of lesion treated are essential if radium therapy in the field of ophthalmology is to progress.
2. Experimental data from a series of six experiments in which silver tubes with varying strengths of radium were used show definite change and injury to the rabbit eye except following the use of 15 and 25 mc doses.
3. The effect of unscreened bare tubes on the rabbit eye is decidedly caustic and injurious.
4. Heavily screened gamma radiation with platinum tubes appears to cause little injury to the eye tissues except in the larger amounts.
5. Of a series of twenty-three rabbits treated with different amounts of radium the tension was found to be increased in all but one.
6. There is evidence of delayed reaction and remote effects of radium particularly after the use of larger amounts.
7. Radium appears to be of considerable value in conditions about the lid, conjunctiva and cornea and of some value in the deeper parts of the eye.
8. Experience in treating patients has shown that in most conditions the best results are obtained with gamma radiation in comparatively small amounts over an extended period of time.

LESLIE L. MCCOY, M.D.

Schwartz F O. Melanocarcinoma of the Choroid. Sympathetic Ophthalmia and Retrobulbar Neuritis. *Am J Ophth* 1927 35 35.

A man of 38 years suffered an attack of what appeared to be acute inflammatory glaucoma of the right eye. Under myotics the vision cleared up to some extent in that the tension of the eye became normal but clinically the eye remained violently inflamed and there was a small mass of yellowish material which blocked the pupil obscuring the fundus. One month later there was photophobia with lachrymation and signs of an iridocyclitis in the left eye. A diagnosis of sympathetic ophthalmia was



The disease is not limited to any age. The author's patients were all males whose average age was 70 years.

In all of his cases both eyes were involved but the ophthalmoscopic appearances differed quite markedly in the two eyes. Ormond describes in detail seven eyes in four patients. His article contains six very fine colored illustrations. He attributes the changes to a thrombotic condition of the capillaries in the outer reticular layers of the retina. In chronic conditions a serous exudate is found but in rapid or acute changes hemorrhages take the place of the exudation. In time solidification and contraction of the mass results but not before definite fibroid changes have been produced. This theory explains the fact that the condition occurs in elderly persons who for the most part seem to be healthy for their age and do not show any definite signs of arterio-sclerotic change in the retinal vessel.

In most of the cases recorded the findings were similar viz failure of central vision a tumor like formation with the retinal vessels running over it white areas pigmentation and subhyaloid and retinal hemorrhages. It is evident that the layer of rods and cones may be disturbed quite early since distortion of objects seems to be the first defect noticed by the patient. In some cases vision is not noticeably decreased although the ophthalmoscopic signs are definite.

The pathology rests on senile failure of the capillary circulation in the retina. The amount of exudation depends upon whether the arterioles or venules were first or mainly involved. The disturbance of vision depends upon the particular layer of the retina involved. Disturbance of the rods and cones causes the greatest disturbance in vision.

There is no marked exudation in these cases but as Parsons points out the capillaries have no corresponding veins and they afford an indirect anastomosis between the choroidal and the retinal vascular systems consequently a local atrophic condition is represented by the white disk the failure of vision and absence of marked exudative changes.

LESLIE L. MCCOY, M.D.

Halbertsma, K. T. A. A Crater Like Hole and Coloboma of the Disk Associated with Changes at the Macula. *B. J. Ophth.* 9, 7.

The author reports a case in which there were alterations in the visual acuity and perception of color and visual fields due to hole in the disk. This is a very rare congenital anomaly and very rarely associated with any other congenital defect. Most ophthalmologists do not consider that a hole at the disk gives rise to symptoms attributing any alteration in the visual field or color perception in such cases to other defects. Halbertsma gives a detailed description of his case with field charts and a colored diagram of the disk and surrounding area and a more detailed account of the theories and findings of those who have reported similar cases.

LESLIE L. MCCOY, M.D.

## EAR

Ulrich, K. Injuries of the Ear in Basal Skull Fractures. A Histological and Clinical Study. *V. Zeitsung. n. d. Chir. Organe bei Schädelbasalfrakturen.* *Arch. f. klin. u. exp. Med.* 106, 11.

Ulrich's purpose in this histological and clinical study was to explain on a scientific basis the numerous peace time ear injuries which resemble those sustained during war. There has been and still is a great deal of difficulty in correlating the amount of functional disturbance with the injury sustained. The author has attempted to determine the relation ship between the type and severity of the skull injury and the amount of disturbance of function.

The first part of Ulrich's report deals with fractures of the temporal bone without injury of the labyrinthine capsule. In eighteen cases which came to autopsy the petrous portion of the temporal bone was studied histologically. The autopsy protocols and descriptions of the serial sections are given. The findings are summarized as follows:

Lesions of the internal ear may result from basal skull fractures without fracture of the petrous portion of the temporal bone. The farther the trauma from the ear the less severe the lesion in the region of the ear. In no case in which the temporal bone was not itself fractured could a lesion of the internal ear be demonstrated.

In the clinical part of this section of the report forty five cases in which functional tests were carried out are reported in detail. The observations demonstrate that in longitudinal fractures of the petrous portion of the temporal bone the prognosis as to function is usually good. There is no such condition as commotio labyrinthi in the old clinical sense of the term.

In the second part of this report the author discusses fractures of the temporal bone with injury to the labyrinthine capsule. The microscopically studied cases are reported first—three seen by the author and sixteen reported by others. The autopsy protocols and detailed descriptions of the microscopic findings are given. These indicate that fracture of the labyrinth capsule in basal skull fractures depends not upon the force of the trauma but upon the direction of the fracture which in turn depends upon some unknown static condition. A variation in the pressure of the perilymph alone cannot cause rupture of the membrane in the round window. There is no known record of a microscopically studied case of transverse fracture of the pyramidal bone with labyrinthine destruction in which a rupture of the tympanic membrane was demonstrated.

In the clinical section of this part of the report the author discusses the diagnosis of labyrinthine fracture on the basis of twelve cases. The case histories are given in detail. He discusses the functional tests and difficulties in the differential diagnosis between longitudinal and transverse fractures of the petrous portion of the temporal bone and the prognosis. The occurrence of bleeding from the auditory canal



and dwell on the so called hemorrhagic type. The latter is easily missed partly because of the misleading gastro intestinal symptoms and partly because of the paucity of otological signs. A slight change in the color of the membrana and a distinct downward sag of the superior canal wall just external to the annulus may be the only significant findings.

It is stated that the difference between hemorrhagic mastoiditis and the coalescent type is due to the character of the invading organism. The gastro intestinal symptoms result from the massive absorption of toxins.

W. M. PATON, M.D.

### NOSE AND SINUSES

Hirsch, O. The Catarrhal Inflammation of the Nasal Accessory Sinuses and Its Diagnosis.  
La 35 36 p 197 211

Catarrhal inflammations of the nasal accessory sinuses are clinically macroscopically and usually histologically inflammations of a special type.

The author reports the findings in fifteen cases of recurring nasal polyps with negative washings of the antra which were operated upon. The chronic form of catarrhal antral inflammation was found in all cases of recurring nasal polyps. In two there was a catarrhal inflammation of other cavities in addition to the antrum.

Chronic antral inflammation appears in two forms, one which appears on the antral walls as edematous ridges filling up the cavity completely and another in which the antral mucosa is drawn out into a cord.

Histologically, the catarrhal antral inflammation is characterized by marked edema and the separation of strands of connective tissue as in polyps.

All recurring nasal polyps are a sign of catarrhal inflammation of the accessory sinuses. Other signs are a serous discharge from the needle on puncture, the spontaneous discharge of serous fluid from the nose, a shadow in the antrum in the X-ray picture, and most important, serous coryza. Most cases of vasomotor rhinitis are caused by catarrhal inflammation of the accessory sinuses.

In a few cases the nasal polyps subsided after the removal of chronic catarrhal antral mucosa.

H. L. WILLIAMS, M.D.

Cone, A. J. The Relationship of Acute and Chronic Paranasal Sinus Disease to Systemic Conditions in Infants and Young Children.  
La 35 36 p 197 211

The author illustrates the very striking relationship that exists between paranasal sinus disease in young children and a widely diverse group of systemic conditions. He suggests that the exciting cause may be found in the upper respiratory tract.

A group of eleven cases of systemic disease in children under 11 years of age were carefully studied from the rhinological standpoint. The conditions included arthritis, eczema, asthma, chorea, bronchiectasis, malnutrition, anhydremia, nephritis,

nephrosis, pyelitis, chronic ulcerative colitis, head ache, and diabetes. These groups are discussed in detail. In many cases the clinical course of the systemic disease was favorably influenced by the conservative or radical treatment of the co-existing paranasal sinus disease and in some a complete cure resulted.

The author's method of treating sinusitis in young children is of special interest to rhinologists. He finds the nasopharyngoscope a very valuable diagnostic aid. With Dean he regards roentgenograms as anatomical and not true pathological indicators.

W. M. PATON, M.D.

Spielberg, W. The Intranasal Ethmoid and Frontal Sinus Operation Technique. Report of Cases.  
L 35 36 p 197 211

The author believes that the intranasal ethmoid and frontal sinus operations of Hall is the operation of choice and with slight modifications is to be preferred to all other methods in use at the present time. He reports twenty cases in which it was performed. The technique is as follows:

A 10 per cent cocaine solution is applied to the mucosa and a 0.5 per cent solution of novocain then injected. The middle turbinate is pushed out of the way against the septum. Two incisions are made—one beneath and horizontal to the middle turbinate and the other 4 in. below the first one. The ethmoid cells are opened with a sharp punch forceps followed by a small sharp curette. The anterior and preturbinal artery is exposed by the formation of a mucoperiosteal flap by an incision from the head of the middle turbinate upward to the roof of the nose, another incision made from this incision along the outer wall as far as the piriform aperture and a third incision made from the second to the head of the middle turbinate. The flap is elevated and reflected downward and deeper nasal cells are chiseled away. The opening is then enlarged into the frontal sinus, the floor being removed and the work being done in a postero-anterior direction with a curette or an electric burr. The mucosa lining the frontal sinus is then curetted and the flap replaced and fixed in position by an iodiform gauze pack.

On the third day after the operation the pack is removed and repeated irrigations are given.

This operation preserves the middle turbinate bone and leaves the nasal mucosa in as normal a state as possible. In other methods the middle turbinate is sacrificed in whole or in part and a good deal of the surrounding normal nasal mucosa is destroyed.

Injury to the cribriform plate, anterior cranial fossa and olfactory nerve filaments is practically impossible.

By the formation of the mucoperiosteal flap and preservation of the middle turbinate, postoperative scarring, dryness and crust formation and a long drawn-out course of postoperative treatment are avoided.



substance such as lime or magnesium but to a living micro organism in the drinking water

I following the recommendation made in this report a new pipe line water supply from the neighboring station of Kasuli was provided in 1918. Hereafter gutter began to decrease and has now disappeared. The new water supply has been found to be remarkably free from impurities and to contain only traces of magnesium and lime and a little iodine.

RAYMOND GREEN MD

RAYN D GREEN M D

Geher H. Anamn. Infektion d. d. Thyroid Fol-  
likel. Ligation d. d. Vessel f. d. d. w. d.  
Die d. e. (U. b. r. a. n. s. m. i. s. c. h. I. n. f. e. k. t. i. o. n.  
S. h. i. l. l. e. s. f. i. e. l. f. u. t. e. s. t. i. e. n. w. e. r.  
B. i. w. s. c. h. r. a. n. k. h. e. i. t. s. d. i. e. C. A.  
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This is the first reported case of an aortic infarction of the thyroid following ligation of the four thyroid arteries in Basedow's disease. The condition was demonstrated by autopsy. The patient, a woman 29 years of age, had been using iodized salt in her food and three weeks previously to her admission to the hospital took two 15-line tablets because she noted that her neck was getting thicker. Four weeks after the onset of symptoms she was admitted to the hospital with the complaint of weakness of the extremities and a bradycardia. She died 66 per cent.

Following roentgen irradiation of the gland there was clinical improvement but when the patient became excited all of the symptoms recurred. Because of the severity of the condition only arterial ligation was attempted. The left superior and inferior arteries were ligated first and the right superior and inferior arteries a week later. During the second operation the patient became very much excited and could not be quieted. On the following day she died with all of the signs of a very severe toxidrome.

Autopsy showed a beginning bronchopneumonia with purulent hemorrhagic tracheobronchitis, septic embolism of the spleen, toxic edema and cloudy swelling of the liver, kidneys and heart and swelling of the tonsils and of the follicles in the bowel and at the base of the tongue. The thymus weighed 10 gm. The thyroid was evenly enlarged and weighed 137 gm. It was infiltrated with multiple irregularly colored areas surrounded by a narrow red rim, the typical picture of anaplastic carcinoma. About one-fifth of the entire gland was necrotic. The necrosis affected chiefly the right side. The remaining glandular tissue was strikingly poor in colloid.

Microscopic examination showed small sharply circumscribed areas of apparently early necrosis without any cellular reaction in the surrounding tissues and larger areas of necrosis with sharp boundaries from the rest of the gland. In many places there was a leukocytic infiltration on the boundary between the large necrotic areas and the normal gland and frequently a hemorrhagic marginal zone was found but never any focus of complete hemorrhagic infarction. The rest of the gland tissue showed

a good deal of desquamation. There was rather extensive cicatrization and connective tissue proliferation probably caused by the roentgen irradiation. The cells of the proliferated connective tissue showed re-epithelial fatty degeneration.

To explain such extensive necrosis following irradiation of the vessels in a case of Basedow's disease the author suggests that the previous roentgen irradiation may have caused changes in the collateral circulation by increasing the irritability of the nerves of the blood vessels. (RAY, Z)

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The author recalls our indebtedness to such investigators as Simon Cerhardt, Rosenbach, Graebner, and Ryssel, whose experimental work has established the following basic facts:

1. 10 roots of nerve fibers supply the inferior (recurrent) laryngeal nerves: one the abductors (dilators of the glottis) the other the adductor fibers (closers of the glottis). The former activate the respiratory function of the larynx. The latter are responsible for voice production.

3 The bundle of abductor fibers occupies a central position in the nerve

4 The abductor fibers are more vulnerable to pressure traumas or morbid lesions of the nerve itself

5 The neuromuscular apparatus which presides over the laryngeal function in respiration is apparently of weaker construction than that concerned in the production of the voice

Abduction is more easily disturbed than adduction

An anatomophysiological consideration emphasized by the author is the superficial plane occupied by the inferior laryngeal nerves just before they enter the larynx through the lateral portion of the cricoid membrane. High operative procedures increase the liability to injury of the nerves. Pathological pressure from enlargement of the thyroid will usually abolish the function of the weaker abductor fibers first. Continued pressure will affect the adductor fibers. The cord then becomes fixed in the cadaveric position.

Postoperative systematic study of the larynx will present the only infallible evidence that the operator was not to blame for the late development of paralysis of the cord. Postoperative scar tissue may be held responsible for this late paralysis.

The author draws the following conclusion:

In the thyroid problem, laryngology must be given the opportunity of enlightening the profession as to the pre-operative and postoperative status of the larynx. Only thus can we be informed as to whether this organ is damaged by pre-operative pathological changes in the thyroid.

If there is pre-operative laryngeal impairment, the surgeon armed with these data will take special care in the manipulations of the intact nerve areas during surgical procedures.

Pre-operative laryngoscopy may reveal an initial abductor paralysis and thus give the clue for timely surgical interference with a better prospect of preventing complete dysfunction of one vocal cord.

Such a study of the larynx will protect the operator from the accusation of having caused a paralysis which existed previous to operation.

In the discussion of the report, WEIL stated that his observations have been slightly different from the author's in that he has found the most common paralysis of the cord in the cadaveric position.

MAES stated that the wedge-shaped excision of the anterior part of the lobes has lessened the liability to injury of the laryngeal nerves. He emphasized the possibility of injuring the laryngeal nerves as they approach the cricoid membrane. He cited Judd as stating that pure hyperplasia of the thyroid gland rarely causes sufficient pressure to injure the laryngeal nerves. Such an injury is most common in the adenoma and colloid types of thyroid enlargement.

COWLEY recommended for cases requiring a tracheotomy tube a valve attachment for the opening of the tube which will permit phonation without placing the finger over the air inlet.

All agreed with the author that pre-operative and postoperative laryngoscopic examinations should be made to protect not only laryngeal function but also the surgeon's reputation.

J. EDWIN KIRKPATRICK, M.D.

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

Gleason W. P. Traumatic and Infective Lesion of the Brain: The Chief Manifestations of Which Are Visual Disturbances Their Diagnosis and Surgical Treatment. Surg. Clin. N. Am. 9: 631, 1935

This article deals with some of the author's cases in which visual disturbances were the early manifestations of cerebral involvement in traumatic and infective lesions of the head.

The optic nerves are well anatomically to show their communications with the base of the brain, central ganglia and cerebral cortex. Visual disturbances of intracranial origin are due to general intracranial pressure or direct injuries at some point in the optic system from the nerves to the visual cortical centers or their particular association fibers.

The different types and indications of pressure are discussed and illustrated with case reports.

When there is a general increase of intracranial pressure, the most striking ocular manifestation is papilloedema. When the papilloedema is unilateral it is believed by some to occur on the same side as the lesion, but this is not always true. Vascular disturbances affecting the venous return from the retina are apt to be associated with marked blurring of the disks. Such conditions as hemorrhage and intracerebral thrombosis are common causes. Decompression of the retina of papilloedema should be undertaken only after the most careful consideration of all factors and then only by those with special experience in cranial surgery.

Pressure upon the optic nerve at the optic foramen may result in permanent blindness if it is not promptly relieved. The hemorrhage from fractures is a common source. In a case reported fragments of a bullet were removed through an intracranial exploratory approach to the orbit with removal of a part of its roof. In another case drainage of the ethmoidal sinuses transiently relieved a progressing papilloedema due to acute infection and pressure at the optic foramen. In arteriovenous aneurysm resulting from rupture of the internal carotid artery into the cavernous sinus it is best to ligate the internal common carotid artery.

When there is a compression of the optic chiasm and the primary optic centers Wernicke's symptom can usually be demonstrated by a combination of prism tests.

As the optic tract is in intimate contact with the internal capsule and descending horn of the lateral ventricle hemorrhage or abscess may produce hemianopia with or without involvement of motor and sensory functions.

In the presence of pressure at the visual cortical center in the occipital lobe hemianopsia due to hemorrhage, cyst or abscess may be present but undetected for a long time. In such cases an examination should always be made of the field.

Pressure on the association fibers of the temporo-occipital and frontal lobes may produce visual defects which are not detected by the patient or may fluctuate; hence repeated examinations should be made of traumatic and infective lesions in the temporo-occipital lobe. A very slight relief of pressure may relieve the defect.

The author concludes by urging a more uniform ophthalmological and neurological investigation in all general medical and surgical cases.

ALFRED S. CRAWFORD, M.D.

Ball, R. P. and Spurling, R. C. Cerebrospinal Fluid Leak Due to a Fistula of the Cisterna Magna. J. S. 927, 1931

The authors report the case of a 28-year-old negro who had a stab wound in the posterior cervical region extending from the base of the skull downward and to the left for a distance of 6 cm. The patient was unconscious and in moderate shock. The wound was irrigated and closed with a rubber drain in the lower end. The next day the shock had cleared and the patient's condition was fairly good. Twelve hours after his admission to the hospital he had an attack of projectile vomiting and some pain at the site of the wound. On the third day he had a three-minute convulsion followed by headache. A profuse clear serous discharge (cerebrospinal fluid) occurred. For the next twelve days the temporal and occipital headache continued intermittently with the temperature between 99 and 100.8 degrees F. At the time of the patient's admission to the hospital the blood pressure was 120 systolic and 60 diastolic. On the 11th day it was 160 systolic and 60 diastolic. The wound was slightly infected but healed in a sinus track through which cerebrospinal fluid escaped.

On the twelfth day the temperature rose to 101 degrees F, the pulse rate to 90 and the respiratory rate to 20. When a ventral probe was passed up the sinus and a roentgenogram was made the probe tip was seen on the arch of the atlas. Four hundred cubic centimeters of cerebrospinal fluid drained daily. The fluid was collected by means of a glass female catheter which was held into the sinus by flexible colloidal. At the time of the insertion of the catheter a spinal puncture yielded turbid cerebrospinal fluid with 400 leucocytes (60 per cent polymorphonuclears) per cubic centimeter. Repeated punctures and cultures showed a non-hemolytic streptococcus staphylococcus albus and an unidentified

tified Gram positive bacillus. The spinal manometer reading in the cervical and lumbar regions was 16 mm Hg.

On the fifteenth day the temperature was 103.6 degrees C, the pulse rate 110 and the respiratory rate 28. The patient complained of headache and a positive Kernig's sign was noted. On the seventeenth day the temperature, pulse and respiration became and remained normal. The cerebrospinal fluid drainage suddenly stopped on the nineteenth day while the glass catheter was still in the sinus. After the drainage ceased the headache became very severe but was controlled by aspirin and limitation of the fluid intake. The symptoms then gradually subsided and the patient was discharged from the hospital on the twenty-first day.

In studies of the cerebrospinal fluid the intravenous injection of 20 c.c. of a 1 per cent gentian violet solution caused no visible coloring of the cerebrospinal fluid in a period of twenty-four hours. One cubic centimeter of phenolsulphonophthalein injected into the lumbar subarachnoid space with the patient in the recumbent position first appeared in the cervical fluid drainage after one hour and twenty minutes. Fifteen per cent was eliminated in the urine in two hours. Thirty grains of methenamine given by mouth appeared in the cerebrospinal fluid after 6 hours (fluid acidified before the formaldehyde test was positive). One hundred and twenty grains of sodium salicylate by mouth decreased the fluid output to c.c. during the following five hours but this was within the variation of fluid loss at the time.

The authors assume that the stab wound entered the cisterna magna forming a fistula from which the cerebrospinal fluid drained and that on the twelfth day after the injury a cerebrospinal meningitis developed from a mixed infection entering through the wound.

Continuous drainage from the cisterna was maintained by keeping the wound open. Recovery resulted before spontaneous closure of the sinus fistula occurred.

Dandy mentions three types of treatment for septic meningitis: (1) repeated lumbar puncture (intermittent drainage); (2) continuous drainage from (a) the spinal canal, (b) cisterna magna, (c) puncture cisterna, (d) lateral ventricles or (e) subarachnoid space; and (3) irrigations of the subarachnoid space. In Dandy's opinion continuous drainage from the cisterna magna is the best form of treatment. In four of his cases there were three recoveries.

Morley's report of a case of staphylococcus meningitis secondary to a sacral sinus in which recovery followed a lumbar laminectomy and drainage of the spinal fluid. In Dandy's opinion continuous drainage from the cisterna magna is the best form of treatment. In four of his cases there were three recoveries.

In a study of the cerebrospinal fluid with phenolphthalein Solomon concluded that there is a free communication between the lumbar

subarachnoid space, the cisternal subarachnoid space and the lateral ventricles but that the movement of substances introduced into the cerebrospinal fluid depend either on the circulation of the cerebrospinal fluid or as is more probable on diffusion by osmotic and specific gravity effects.

WALTER C. BLUFF, M.D.

Smith P. E. The Disabilities Caused by Hypophysectomy and Their Repair. The Tuberal (Hypothalamic) Syndrome in the Rat. *J. Im.* 11: 155, 1927.

For ablation of the hypophysis Smith uses the ventral approach and aspirates the gland tissue through a cannula. Either the whole gland or the posterior lobe alone can be rapidly ablated by this method.

From more than 110 operations he draws the following conclusions:

Hypophysectomy produces an invariable and characteristic syndrome in the rat, the chief features of which are an inhibition in growth in the young animal or a loss of weight in the mature animal; atrophy of the thyroid, suprarenal cortex and sex organs; weakness and cachexia. The animal survives for months.

The disabilities arising from hypophysectomy can be completely or nearly completely cured by daily pituitary homotransplantations. Intraperitoneal injections of saline extracts (suspensions) made from ox pituitaries prepared by the method of Evans and Long do not repair the atrophied thyroids, suprarenal cortex or sex organs and prevent repair of the sex glands by pituitary transplants. Skeletal growth is stimulated by the injection of the bovine fluid.

A lesion of the hypothalamic region of the brain (tuber cinereum) give rise to a syndrome distinct from that caused by pituitary ablation which is characterized by extreme obesity and atrophy of the genital system, the thyroids and the suprarenal cortex do not undergo atrophy. In certain cases the total length of the animal may be reduced in other cases it is unaffected. STALEY J. STREGER, M.D.

Sekiguchi S. and Olje T. Vagus Tumor. *Neurinomata Sarcomatodes* (II) 17: 23, 1927. 11: 113.

Tumors of the vagus are exceedingly rare. A 30-year old man had covered a small nodule in the upper part of his neck on the right side. Pressure on the nodule brought on a severe attack of coughing. Medical management for a considerable period of time was unsuccessful.

Under local anesthesia a spindle-shaped tumor measuring 5.7 by 1.7 cm. was removed from the region of the right vagus. Except for paralysis of the right recurrent laryngeal nerve there were no unfavorable sequelae following the operation. Histological examination of the tumor showed it to be a neurinoma sarcomatodes. STALEY (2).

Ballance Sir C. and Colledge L. Cinematograph Demonstration Effects of Nerve Anastomosis on the Elements of the Vocal Cords and Diaphragm. *J. C. R. Y. S. C. M. I. L. N. D. 97*

In a dog the phrenic root from the sixth cervical nerve on the right side as divided the proximal end united end to end with the recurrent laryngeal nerve and the distal part anastomosed end to end to the descending vocal nerve. On the left side the entire trunk of the phrenic was divided and united end to end with the recurrent laryngeal. In order to prevent permanent paralysis of the corresponding half of the diaphragm the descending vocal nerve was divided and the proximal part united to the distal cut end of the phrenic.

After the operation the dog which had been selected because it barked incessantly did not bark for three months. Recovery was gradual and at the time the authors demonstrated the animal it barked as vigorously as ever. The right cord moved more actively than the left because the anastomosis was made several months earlier on the right side. The diaphragm had entirely recovered from the paralysis.

In a monkey the distal cut end of the recurrent laryngeal nerve on the right side was united to the side of the phrenic nerve. On the left side the proximal end of the sectioned phrenic was united to the distal cut end of the recurrent laryngeal. Both vocal cords recovered movement and the monkey regained the ability to bark.

In order to prevent permanent paralysis of the depressor muscles of the larynx sternohyoid, sternothyroid and omohyoid after division and anastomosis of the descending vocal nerve with the phrenic the authors extend and suture the distal part of the descending vocal nerve which has a tortuous course into the side of the hypoglossal nerve. They have made this anastomosis many times and always successfully with recovery of the movement and function of the depressor muscles of the hyoid bone and larynx.

A woman aged 57 years was operated upon for thyroid disease in 1919. Barnes who first saw this patient in May 1926 found laryngitis and severe dyspnea. Tracheotomy had not been performed. The vocal cords were completely paralyzed and when deeper respiration than normal was attempted tended to come together. On June 5, 1926, Ballance united the recurrent laryngeal nerve (which was deeply involved in the scar) to one third of the phrenic nerve. On month later the left side was treated similarly. Seven weeks after the first operation the tone of the right cord showed definite improvement. Eight weeks later the larynx was still paralyzed on both sides. At the time of the report the patient had well marked movement of the right cord the rhytenoid on left could be seen to move. The diaphragm recovered on both sides.

The authors emphasize that paralysis of the vocal cord may be cured by anastomosis of the recurrent laryngeal nerve with the phrenic nerve that di-

aphragmatic muscle paralysis may be relieved by uniting the phrenic to the descending vocal nerve and that paralysis of the depressor muscles of the hyoid bone and larynx may be cured by end to side union of the cut-end of the descending vocal nerve to the lower side of the hypoglossal nerve. Ballance does not claim that in man every function of the cords is restored after these operations but believes that in the future laryngologists will have no excuse to leave paralyzed vocal cords untreated. *WALTER C. BUCKET M.D.*

## SPINAL CORD AND ITS COVERINGS

Learmonth J. R. On Leptomeningioma (Endothelioma) of the Spinal Cord. *B. J. S. 1917* 397

Learmonth has made an extensive study of leptomeningioma of the spinal cord which have hitherto been called endothelioma or psammoma. His discussion is developed under the following heads: Historical introduction, development of the arachnoid structure and relations of the adult leptomeningeal incidence of leptomeningioma occurrence with other tumors, pathological anatomy, etiology, gross pathology, microscopic appearances, clinical physiology of the spinal cord, pathology of compression of the spinal cord, general clinical features of leptomeningioma, leptomeningioma in special situations, disturbances of visceral and sexual functions, accessory details, diagnosis, determination of the level of the tumor, differential diagnosis, operative treatment and prognosis.

The histories of five cases are given.

*STANLEY J. SEEGER M.D.*

## PERIPHERAL NERVES

Koch K. Does Primary Union Occur After Nerve Suture? (Gibt es eine primäre Union nach einer Nervenverletzung?) *R. M. D. 1917* 93

Statistics which regard the results of nerve suture differ greatly. Some surgeons report the results in 90 per cent of their cases while others obtain no healing and note improvement in only 9 per cent. Because of this difference and the fact that in one case a nerve will completely recover following suture while in another case in which the same technique is used its union is not restored. Koch attempted to determine by experiments on the sciatic nerve of rabbits and dogs whether suture is followed by primary union or whether condensation can be restored in a few days.

On the basis of his histological findings he concludes that the variations in the results of nerve suture are due to the occurrence in the region of the suture material of secondary changes which interfere with the growth of the delicate fibrils and compromise the success of the operation.

He concludes also that union by primary intention does not occur after nerve suture. Even under the most favorable conditions when only single nerve bundles are cut and immediately reuniting the

field was kept moist with physiological salt solution the healing could not be hastened. Regeneration is impossible without degeneration and this requires a certain length of time which cannot be shortened. The quick restoration of function in some cases is due to the presence of collateral nerve paths.

Koch recommends not a simple transneuronal suture but exact perineural adaptation of the nerve end in order that no nerve fibrils remain outside of the line of suture. Very fine silk should be used for the suturing and great tension should be avoided. The protracted adaptation recommended by Stöckel is rejected by Koch as directly injurious. Nerve suture can be attempted after the lapse of several years. Regeneration has occurred even after three or four years. HALL (Z)

### MISCELLANEOUS

Carnett J B and Winkelmann W W Metastatic Tumors of the Nervous System *Surg Clin N Am* 1934 4

The authors report the case of a colored woman who first discovered a small hard lump in her right breast in 1924. A few months later a cancer quack applied a caustic paste which produced an ulcer that never healed. No other treatment had been given.

After a bath three days before her admission to the hospital the patient complained that her feet felt chilly and numb. On the following morning she was unable to stand because of weakness and complained of numbness and needle stickings in both legs. Examination at the time of her admission to the hospital revealed a 4 in. ulcer over the site of the right breast and complete paralysis from the fifth or sixth thoracic vertebra downward with bladder and rectal incontinence. The X-ray showed crushing of the fifth sixth and seventh vertebrae.

The sudden onset of paralysis with X-ray evidence of triangular compression of carcinomatous vertebrae at the same level is often interpreted as indicat-

ing that the paralysis occurred simultaneously with the crushing and is due to direct compression of the cord by the deformed vertebral bodies.

Postmortem investigation of Carnett's cases of paralysis has shown that as a rule the lesion is due to a metastatic extradural tumor which may act by directly compressing the cord but more often merely shuts off the blood supply of the cord.

The patient whose case is reported was given heavy radium treatment over the fifth to eighth thoracic vertebrae. Two weeks later she began to improve and is now able to walk. Bladder and rectal control has completely returned and she is free from pain.

It is well known that the spinal cord may escape injury even when there is marked deformity of the spine. In other cases there is weakness or paralysis below a given level without demonstrable involvement of the spinal column. In a third group there is mottling of one or more vertebrae without deformity but with clinical evidence of a partial or complete transverse lesion.

In the case of a patient with carcinoma of the prostate who suddenly developed paralysis below the tenth thoracic segment autopsy revealed a flat extradural adenocarcinoma extending from the seventh thoracic vertebra to the conus and softening of the seventh to ninth spinal cord segments due to blood vessel occlusion by the tumor.

This effect could not have been produced by the pressure of the flat tumor. It is due to compression of the blood vessels supplying the cord. Another case showed a gelatinous mass surrounding the cord with no compression but with softening of the cord due to blood vessel occlusion.

Four cases of metastatic involvement of the brain and its membranes are described briefly: (1) a metastasis within the substance of the brain itself (2) blood stream cerebral invasion (3) a metastatic nodule underneath the dura pressing upon the emerging roots and (4) an isolated easily removable tumor.

HARRY C. SALTZSTEIN, M.D.

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

Blind P B Infection of the Lactating Breast  
*Med J & R 1927 xv 1*

Bacterial invasion of the lactating mammary gland while not frequent is not uncommon. The profound physiological activity of the breast during the initiation of lactation and in conditions arising during nursing such as abrasions or fissures of the nipple and uncleanly management of nursing are the chief predisposing factors.

According to Nunn infection of the breast occurs most often in the first two months of lactation. Fitz Williams attributes it to the net conditions imposed upon the breast. It is produced in the tenth month by the trauma inflicted by the infant's incisor teeth.

The bacteria chiefly responsible for such infections are *staphylococcus albus* and *staphylococcus aureus*. In a series of 100 lactating breasts Kostlin found only fourteen in which cultures of the milk were sterile in the remainder they showed *staphylococcus albus* and varying numbers of other *staphylococcus* types and *streptococcus*.

The portal of entry for these micro-organisms is a weak protective epithelium of the nipple and adjacent tissue. The entrance of bacteria into the parenchyma of the gland is favored by fissures abrasions blisters and maceration of the epithelium.

Autogenous infection the most common form is due to the constant presence of bacteria in and about the nipple. Exogenous infection is caused by organisms conveyed to the nipple from the salivary secretions of the infant with stomatitis or by uncleanly management of nursing. Hematogenous infection occurs in pyæmia and puerperal septicæmia.

According to Lecne and Lammant Wiebig has Deaver McFarland and the author the frequency of inflammatory disease of the breast varies from 5 per cent to one half 1 per cent. Kohler and Weiss found breast infections more frequent in primiparae. Winckel found involvement in both breasts in 16 per cent of his cases but rarely simultaneously.

There are two types of inflammatory involvements (1) subcutaneous and (2) intramammary. The subcutaneous type begins as a lymphangitis may undergo resolution or develop into a superficial abscess. The intramammary type may involve one or more lobules and caliculate the lower and outer quadrant of the gland or involve the entire breast from the onset as a diffuse phlegmonous process. Recovery usually results in two or three weeks if localization occurs and adequate treatment given. The diffuse gangrenous type however has a very high mortality.

The author recommends prophylactic measures during the latter weeks of pregnancy such as cleansing of the breast daily with tincture of green soap and warm water followed by the application of a greaseless cream. He advises against the routine use of dehydrating or astringent solutions as he believes they favor abrasions and fissures. Careful cleansing of the baby's mouth is no longer practised in his case a special electric pump being used instead. Inverted nipples should be gently elevated digitally or by carefully applied suction apparatus. Nursing should be interdicted if abrasions or fissures appear. The sore nipple must be kept clean with warm boracic solution and protected with sterile gauze moistened with sterile olive oil. Engorgement may be relieved by the breast pump. Overdistended or pendulous breasts should be supported by a carefully fitted binder. In the presence of infection in one breast every precaution must be taken to prevent contamination of the other breast.

The treatment of frank infection consists in the application of ice bags intermentally for from forty-eight to seventy-two hours. If no improvement occurs hot water bags should be applied until localized oedema or signs of suppuration appear. When this occurs free incision in a line radiating from the nipple should be done immediately. Any pockets of cavities must be broken into and free drainage instituted. The further treatment consists in the constant application of warm saline compresses. Aspiration of the abscess is condemned because it is not founded on and surgical principles.  
 J. E. V. L. A. TRICK, M.D.

Juengli G O Is Prophylactic Irradiation Justified Following Operation for Carcinoma of the Breast? (Istl p phl ktsch N bbt h l m M mm a m b ht i) St H ih p o b 653

The problem of the adiabability of prophylactic postoperative irradiation in carcinoma of the breast requires for its solution a thorough study of the biology and prognosis of mammary carcinoma and a comparison of the effects of prophylactic irradiation from both the qualitative and the quantitative aspects. The statistics of the result are influenced by the quality of the material and the manner in which the figures are calculated. The quality of the material varies with time and locality. Age constitution factors the nature and primary site of the tumor and the stage of development at which the carcinoma comes under treatment all play a rôle.

For the classification of the lesion into stages (Steinhilf and Lindenberg Anschuetz) a scheme based upon objective findings must be constructed. The following discussion is recommended.

Stage 1 Tumor limited to the breast substance no palpable gland

Stage 2 Tumor no longer freely displaceable palpable glands

Stage 3 Tumor adherent by cancerous tissue to the surrounding structures

Stage 4 Infraclavicular and supraclavicular gland invol ed metastases to the skin

In addition a standard method of calculating the results is necessary. Percentages based on small numbers of cases are to be avoided. The shortest period of observation should be between three and five years. Statistics should contain only absolute number. The percentage should show the relation of the number of surviving patients who are free from recurrence to all patients treated according to a definite method (relative figures on results) or to all cases entering the hospital during the period of time under consideration (absolute figures on results).

Following this general discussion the author cites statistics from different clinics which show the most varied results. On the basis of these figures he comes to the conclusion that worthwhile results can be obtained only by repeated irradiation with medium dosage. He emphasizes that postoperative prophylactic irradiation is still in the experimental stage and is not a method for the small hospital where the staff may not be sufficiently experienced. An understanding of the procedure is to be expected only from methodical work continued for many years. Prophylactic postoperative irradiation of carcinoma of the breast can become a general procedure only after a definite technique has been found by different workers to be safe and effective.

SILVERBERG (Z)

Hoffelder H Is It Justifiable to Give Postoperative Irradiation in Carcinoma of the Breast?  
(Ist die postoperative Bestrahlung beim Mamma-  
mcarcinom berechtigt?) *Strahlentherapie* 1926 VII  
667

Surely surgical results in carcinoma of the breast cannot exceed a certain optimum and are not sufficiently good to warrant satisfaction with surgical treatment alone. Prophylactic measures may be dispensed with only in early cases. Prophylactic roentgen treatment may cause injury if the effect of the rays is too strong.

The results of operation are unsatisfactory and will probably remain so with the present technique because the regional lymph glands are only partially accessible to operation. The lymph gland in the axilla must be removed by careful anatomical dissection following sacrifice of the pectoralis major muscle. Even the removal of the supraclavicular glands makes the operation much more extensive and difficult. Removal of the lymph glands in the axilla and the internal mammary artery which are involved early when the primary tumor is situated in the inner quadrant of the breast is practically always impossible. Weinert, using the Spalteholz method of making frontal sections through the re-

moved breast has shown how far the cancer nest may extend from the primary tumor and therefore how seldom an operation is truly radical. The necessity for the improvement of surgical results by prophylactic measures to prevent recurrence is therefore evident. Of chief importance however is the manner in which the irradiation is given.

While the direct effect of the roentgen rays on carcinoma cells is incontestable it appears probable that all of the cells of a cancer are destroyed simultaneously by any one dose such as the so-called carcinoma dose. If the resistance of the body is still sufficiently great active carcinoma cells may be destroyed in this manner together with cancer cells left behind and already damaged but in other cases even the most intensive irradiation may fail to cause healing.

The difference in the length of the latent period between operation and the first sign of a recurrence may be explained only by the assumption that early recurrence is caused by active carcinoma cells which were left behind while later recurrences are produced by carcinoma cells which remained inactive in the tissues for many years without any metabolism of their own until for some unknown reason they began to grow.

According to clinical experience the latter type of carcinoma cell is far less sensitive to the roentgen rays than the fully active carcinoma cell but because of the inactivity of their metabolism the resting cells are unable to recover from the effects of the irradiation. Therefore it may be assumed that numerous small roentgen doses given at proper intervals may eventually damage this type of cell. The results at the Kiel Clinic are best explained in this way.

Truly successful irradiation treatment renders local recurrence a rare exception and is limited only by cases in which death results from metastases. The formation of distant metastases is prevented most surely by pre-operative prophylactic X-ray treatment since it is assumed that a preal of the carcinoma cells occurs either before operation or is favored by operation. Postoperative prophylactic irradiation is given primarily to prevent local recurrence.

According to experience to date it is probable that fully active carcinoma cells are most injured by the largest possible doses given at short intervals while the inactive cells are most injured by much larger doses. Because of the irradiation uncertainty of the surrounding normal cells the latter must be given in relatively small divided doses at very long intervals.

As the relatively large doses may damage not only the normal cells but also the general protective powers of the body a method must be found which will cause the minimum damage to the minimum without reducing the beneficial effect of the ray. Hoffelder believes that the poor results obtained in the Tübingen Clinic may be explained by the assumption that in the irradiation of large fields and the use



of large deeply penetrating doses of the rays the general pre-treatment of the body were too greatly damaged. This disadvantage is not present in the method of Hans Meyer employed at the Kiel Clinic in which small fields are irradiated and an aluminum filter is employed. On the other hand the use of lightly filtered rays in a dose eventually amounting to five erythema doses is recommended by Juengling as associated with great danger of injury to the skin and with the small field technique is very impracticable that every area of the chest wall receives the same dose.

Hoffel then describes his technique which gives the same uniform dose to the entire large area including the axilla and supraclavicular fossa while it spares the rest of the body especially the thoracic organs. In this skinning technique the chest wall and the entire endotracheal area are treated with large doses of high rays through large tangential fields. The deeper layers receive exactly the same dose as the skin while the lung and heart are completely protected. The determination of the dose and the length of the intervals between exposures depend to a large extent upon the patient's general condition. At any rate it is possible to give four or five erythema doses with out injury to the skin or general condition. The mediastinum is excluded from the irradiation on principle for fear of causing too great general injury. However when the primary tumor is situated in one of the inner quadrants the glandular region near the internal mammary arteries requires special attention.

The dormant cancer cells are most likely to be destroyed and a late recurrence prevented when with this technique one half an erythema dose is given at increasing intervals of four to eight and ten weeks and repeated from eight to ten times. For recurrences developing soon after operation and for still manifest cancer rests it is better to give from 80 to 120 per cent of the erythema dose immediately and then after a period of two months to give the treatment just described but shortening it by two irradiations because of the previous erythema dose. For recurrence already present Hoffel recommends the prophylactic treatment described with half doses through small sharply recumbent fields and a complete interval of recalculation.

In conclusion the author emphasizes that close operation is better than the regional treatment of glands and the latter gives good results. H. M. (2)

**Anschoetz W. and Hellmann J. The Results of Irradiation After Radical Operation for Carcinoma of the Breast.** (U. S. F. I. G. D. N. H. bet. h. g. d. k. l. i. M. m. w.)  
D. i. h. Z. h. f. Ch. 96 47

Subdiv. n. f. Steinhals' economic group of cases of carcinoma of the breast the following classification:

Group 1. Tumor not adherent no gland palpable and no gland involvement found at operation.

Group 2. Tumor not adherent but glands palpated or found involved at operation.

Group 2a. Tumor adherent to the skin or pectoral fascia gland involvement.

Group 2c. Tumor firmly adherent to muscle gland involvement present. In this group belong also cases with broad deep skin ulcerations.

Group 3. Tumor adherent involvement of supraclavicular glands. In a few cases with skin metastases radical amputation was done.

In the opinion of Anschuetz a classification based upon the histological demonstration of carcinoma of the lymph glands (Juengling) is less feasible as this demonstration is difficult and uncertain. Anschuetz recommends judging the results of treatment not by the often uncertain demonstration of recurrence or metastasis but by the duration of life since recurrence and metastasis may disappear or remain quiescent for a long time.

The authors give their statistics for the years 1909-1922. These show such favorable results from postoperative irradiation that at the Kiel Clinic the treatment will be continued in the future and will be given also in cases of Group 1.

The most definite results were obtained in Groups 2a and 2b. In Group 2c the results were unfavorable. In Group 1, all of the patients—seen who did not receive irradiation treatment and eight who received such treatment—were alive after five years.

In Group 2a thirty six (50 per cent) of eighty patients who were not irradiated and nineteen (77 per cent) of 238 who received irradiation were alive after three years and twenty more (50 per cent) of seventy two who were not irradiated and thirty five (56 per cent) of 62 who were irradiated were alive after five years.

In Group 2c seven (24 per cent) of twenty nine who were not irradiated and sixteen (56 per cent) of twenty seven who were irradiated were alive after three years and four (33 per cent) of twenty nine who were not irradiated and six (16 per cent) of thirty seven who were irradiated were alive after five years.

In Group 3 two (25 per cent) of eight who were not irradiated and six (75 per cent) of eight who were irradiated were alive after three years and one (12 per cent) of eight who were not irradiated and two (25 per cent) of eight who were irradiated were alive after five years.

The latter results obtain in these cases a comparison with those by other statisticians for postoperative radiation treatment are raised to the technique—not massively high doses but frequently repeated smaller doses. The following procedure is recommended: Exposure of three fields (breast, axilla and supraclavicular fossa) every four weeks for a treatment of three months in succession the pause of two or three months in resection of the tumor. Treatment continued at the end of the second year in the ten or eleven irradiation. At very young two thirds of the fifth may die. G. H. (2)

## TRACHEA LUNGS AND PLEURA

Hamilton W F Non Tuberculous Pulmonary Disease 16 S 5 227 iv 219

Reports from various sanatoriums show that patients with non tuberculous pulmonary diseases are frequently sent to these institutions and constitute from 25 to 40 per cent of those admitted.

The pathological lesions in the chronic cases are practically those of bronchitis and fibrosis with bronchiectasis and areas of bronchopneumonia varying in size. In many cases the pleura is involved and peribronchial adnitis undoubtedly exists while more or less of spread emphysema is induced.

The physical signs in non tuberculous pulmonary diseases are those of bronchitis of one or a part of one lower lobe or of both lower lobes rarely are the signs found in the upper lobe. The signs are persistent yet variable. Later the signs of emphysema may develop. The roentgenograms show varying degrees of fibrosis. Constitutional symptoms of tuberculous infections are in the main absent while tubercle bacilli are constantly absent from the sputum. A diagnosis based on the bacteriology has been urged but this is obviously extremely difficult.

Five cases are reported. The late results in these as well as practically all cases of the type under consideration depended not only upon the extent of the primary injury to the pulmonary tissue but also on the frequency of recurring and superimposed infections, the type of the infection and circulatory disturbances which in not a few instances were caused by toxæmia and overwork impairing the efficiency of the heart muscle and increasing the dyspnea, cough, expectoration and signs of chronic bronchitis.

CARL R. STEENKE, M.D.

Lemon W S Vinson P P Gaarde F W Moersch H J and Harrington S W The Value of Bronchoscopic Examinations to the Internist and the Surgeon 11 J M D 9 x 10

The authors report that bronchoscopic examinations were required in 10 of the cases seen by them in 1925. Foreign bodies were found in seven. These examinations were decided upon for four reasons: (1) for greater precision in the diagnosis; (2) to establish the surgical indications; (3) to allow direct local treatment; and (4) to clarify clinical impressions as to the cause of certain familiar symptoms in diseases affecting the lungs and bronchi.

Bronchoscopic examination can be made without any distressing symptoms even when the patient is very ill. The average examination requires not more than five minutes and can be made easily under local anesthesia. The larynx, pharynx and bifurcation of the trachea are anesthetized with a 20 per cent solution of cocaine. There is no postoperative reaction.

This report is based on ninety-nine cases divided into four groups: (1) those of suppurative disease; (2) those of pulmonary calculus; (3) those of chronic

infection; and (4) those of neoplasm. The various types in these groups are illustrated by case histories. In many of the cases of bronchiectasis, pulmonary tuberculosis would have been at least strongly suspected if the bronchoscope had not been used. Bronchiectasis is much more common than has been suspected and hemorrhage is found more often in bronchiectasis than in any other disease of the lung. Obstruction of a bronchus was well illustrated in a case in which breath sounds became clearly audible after the aspiration of very thick pus from the affected bronchus.

In some of the cases in Group 1 the extent of the lesion was evident only on bronchoscopic examination. When the symptoms and signs pointed to bronchiectasis on one side, bronchoscopy sometimes revealed a lesion on both. In many cases a differentiation from pulmonary tuberculosis was possible by this method alone. In one case in which the history and progression of symptoms were highly suggestive of phthisis, the bronchoscope revealed a small fragment of tooth lodged in the wall of a bronchus and a complete cure followed extraction of the particle.

The chronic infections, such as tuberculosis and syphilis. Tuberculosis may cause stenosis by intussusception of the bronchus or by extrinsic pressure. The authors have observed that stridor is more marked the nearer the lesion is to the larynx. In gumma of the bronchus, anti-syphilitic treatment practically abolished the symptoms.

Both benign and malignant tumors were encountered. There was only one case of the former and the removal of the neoplasm by diathermy resulted in a cure. The tumor was an adenocarcinoma. The advantage of bronchoscopy in such cases lies not only in direct inspection of the tumor but also in the comparative ease with which a portion may be removed for microscopic diagnosis and the precision with which treatment can be given when it is possible.

Singer J J Bronchography Injection of Iodized Oil 40 Per Cent 4 Ch S 5 9 7 xiv 167

Tucker G Technique of Bronchoscopic Introduction of Bismuth Subcarbonate and Iodized Oil 40 Per Cent for Pneumonography 17 Ch Surg 10 xi 75

Ballou D H and Ballou H C Pneumonography with Iodized Oil 40 Per Cent by the Bronchoscopic Method The Bronchial Tree with Observations Made from 100 Injections 17 J S 1 1927 xi 183

Stewart D A Septic Conditions of the Chest Etiology and Differential Diagnosis 17 Ch S 5 79 x 11

Archibald E W The Value of Iodized Oil 40 Per Cent in the Diagnosis of Pulmonary Infections 4 Ch S 5 19 xi 205

SINGER In the study of the roentgenograms of the chest of a patient who has had a bismuth or barium meal for gastrointestinal study, the roentgenologist occasionally encounters a startling picture of the bronchi outlined by bismuth. This is due to

the formation of a fistulous tract by ulceration of the esophagus into the trachea

There are five methods of introducing iodized oil 40 per cent

1 Through a trocar needle resembling a tracheotomy tube into the trachea under precautions for sterility

2 Under direct laryngoscopic examination with the patient lying on the back with the head extended over the table

3 Through the bronchoscope introduced directly into the lung

4 Through a tracheal catheter introduced under indirect illumination of the larynx

5 By the injection into the pharynx of 20 c.c.m. of oil while the patient pulls out his tongue as far as possible

The patient should be trained to take many successive deep breaths following the injection of the oil

The iodized oils used in the author's cases were lipiodol (Lipol) which contains 40 per cent of oil by weight combined with poppy seed oil and iodipin which contains 40 per cent of oil by weight combined with sesame oil. Whatever method of introduction is used approximately from 20 to 40 c.c.m. of the oil must be employed to produce a suitable roentgenogram. The five methods are described in detail.

The value of bronchography lies in the definite mapping out of the lung structure either normal or altered by pathological conditions. Considerable experience is required to interpret the shadows especially with so dense or opaque a substance.

When combined with a careful physical examination bronchography is of great aid to those who have had considerable experience with suppurative lung conditions. It should be used in any case in which simpler methods can be employed. It is so excellent the bronchial tree with any abnormalities present and when properly employed it is harmless.

The first method is recommended for children the fourth and fifth methods for adults and the second and third methods for use when bronchoscopy is performed for other purposes. The fifth method should be tried in adults before the more complicated method is attempted. If it is unsuccessful the fourth is the method of choice.

Three roentgenograms are shown

TUCKER The introduction into the lung of the radiopaque substances bismuth subcarbonate and iodized oil 40 per cent for pneumonography has been found harmless when limited quantities of the substances are used. The substances are readily coughed out and during the sojourn in the lung have a medicinal value.

The bronchoscopy method of introduction permits a direct examination of the trachea and of the main bronchi of each lobe of the lung. In addition to its diagnostic value the bronchoscopic method permits the removal of obstructing secretions and granulations and when an organic stenosis of the

bronchus is present allows the introduction of the radiopaque substance by sight through the stenosis into the portion of the lung distal to the narrowed bronchus. By this method the substance can be accurately placed in any desired portion of the lung and a positive pneumonogram obtained with the minimal quantity of opaque substance.

Bismuth subcarbonate when insufflated bronchoscopically after thorough aspiration of the secretions will satisfactorily outline the tracheal and bronchial wall and bronchiectatic cavities of the larger bronchi. Iodized oil 40 per cent is most satisfactory in the periphery of the lung and cases in which the abscess cavity communicates with the smaller bronchi. The cavity should be purged as free of pus as possible because although iodized oil 40 per cent will displace air in the cavity it will not so easily displace pus that fills the cavity completely.

The technique of the procedure is described in detail. Several case reports are given to illustrate the difficulties and advantages of the method. The article contains six roentgenograms and several illustrations of instruments.

TUCKER draws the following conclusions

1 The bronchoscopic introduction of opaque substances into the lung for pneumonography is safer for the patient and more accurate in its localization than the introduction of such substances by blind methods.

2 Bismuth subcarbonate insufflation as suggested by JACK on the basis of results in outlining the trachea and larger bronchi and bronchiectatic dilatation in the larger bronchi.

3 Iodized oil 40 per cent is best in abscess cavities and in the periphery of the lung.

4 The most accurate pneumonogram is obtained by the bronchoscopic introduction of the opaque substance on the fluoroscopic table. The entrance of the opaque substance is observed fluoroscopically and the plates are made without the transfer of the patient to another table.

BALLOU This article refers to observations following injections and dissections. Only observation which may serve as clinical aids are recorded.

The bronchial tree was injected during life with iodized oil 40 per cent by the bronchoscopic method.

Dissections in fresh specimens were made under water. In the autopsy specimens both sodium iodide 12 per cent and iodized oil 40 per cent were used to inject the bronchial tree but were found to give poor results. The blood was dyed with barium sulphate in gelatine after Gross method and stereoscopic roentgenograms were made. The bronchial tree was then injected with paraffin and its relationship to the circulation studied.

The functions and characteristics of the bronchial tree are considered. This discussion includes general considerations anatomy the surface markings of the lobes the relation of the circulation (including the lymphatics) to the bronchial tree and abnormal

ities of the bronchial tree. Studies of the respiratory movements made on separate roentgenograms are also reported.

Observations to be made while the patient is being prepared are enumerated. Certain diseases of the bronchial tree are discussed and classifications of bronchiectasis and lung abscess are given. These are illustrated by drawings and roentgenograms.

The following are discussed: the effects of thoracoplasty on the bronchial tree; factors that affect the flow and distribution of iodized oil; the roentgen ray report on the bronchial tree; the value of postural drainage; the intrabronchial route for the application of medication; abnormal shadows; and the choice of patient.

In the living subject the bronchial tree was injected with iodized oil 40 per cent by the bronchoscopic method in postmortem specimens it was injected with paraffin. The blood was injected with barium sulphate in gelatine and its relation to the bronchial tree considered. The physiology of respiration in the normal and pathological lung was studied.

Lung abscesses were classified following studies made after the injection of iodized oil.

At various age periods the appearance of the normal bronchial tree after the injection of iodized oil appears to be constant.

Abnormalities of the bronchial tree are frequent in chronic fibroid phthisis; diseases of the pleura and mediastinum and bronchiectasis.

Bronchial stenosis is often found associated with bronchiectasis and pulmonary abscess.

The most frequent sites of bronchiectasis putrid bronchitis, bronchiolitis and bronchiolectasis are the branched intrapulmonary bronchi and bronchioles.

After extrapleural thoracoplasty for tuberculosis the bronchial tree may undergo numerous changes and become a large tube with localized or generalized bronchiectasis at the base. When the bronchiectasis extends to the periphery, method of collapse should give better results than when the dilatations are basal.

Iodized oil introduced by the bronchoscopic method is an aid and a guide in the selection of cases suitable for the thoracic surgeon and in the prognosis and treatment. It makes it possible to treat each case individually and increases the good results obtained by postural drainage.

Ordinary roentgenograms of the bronchial tree are unsatisfactory and often confusing because the bronchial tree divides frequently and is repeatedly crossed by part of the pulmonary circulation. It fails to give any information as to the site and extent of the disease.

The importance of the accurate interpretation of roentgenograms made following the injection of iodized oil must be emphasized. A positive shadow cast by an injection which cannot be adequately explained on the basis of the clinical history, signs, symptom and a bronchoscopic examination should

not be considered. A typical shadow when substantiated by a clinical picture allows of no discussion.

STEWART. One common cause of septic condition of the chest seems to be bad teeth and gums and a poorly cared for mouth. One of the most common clinical pictures is that of cough expectoration, debility and bad teeth.

The infections following operations under general anesthesia are well known. In many of these septic infections, spirochaetes and fusiform bacilli have been found. In some such cases neoarsphenamine has been administered. So far it cannot be stated that it has been very beneficial, but in some of the cases the spirochaetes have disappeared from the sputum at least temporarily following its use.

Chronic bronchitis has been a convenient term under which many conditions of the respiratory tract have been described. It is time for these conditions to be defined more closely. The injection of iodized oil for outlining of the bronchial tree and bacteriological examination will help.

The excellent results that can be secured from rest and posture in the earlier cases of every type of septic infection are impressive.

An outline of the points to be noted in the differential diagnosis between earlier cases of septic infection and pulmonary tuberculosis is given.

ARCHIBALD. The use of iodized oil 40 per cent has proved of value in tuberculosis to determine the physical condition in a lung previous to a proposed thoracoplasty and to determine the condition in the lung which might explain a lack of complete success years after a thoracoplasty.

Eight case reports are given and even roentgenograms are shown.

In tuberculous cases iodized oil should be used with caution. A method of injection simpler than the bronchoscopic method is probably best because however carefully and skillfully the procedure is carried out it taxes the patient's strength more than a simple supraglottic injection.

The injection of iodized oil is of value also in old thoracoplasty cases in which the symptoms persist. Roentgenograms taken after such injections reveal lesions that cannot be demonstrated by any other method.

During the progress of a several stage operation for bronchiectasis or abscess of the lung it is of value to determine the amount and location of the disease that still remains. C. R. L. STEWART, M.D.

Edwards, A. T. The Surgical Treatment of Phthisis and Bronchiectasis. B. J. H. J. 1927. 19.

In bronchiectasis and phthisis the object of the surgeon is to prevent the evil results of the contraction of fibrous tissue on the important pulmonary structures either by allowing the rigid thoracic wall to fall in or by interposing solid or gaseous buffers between the chest wall and lung to allow localized or generalized pulmonary collapse.

In this way cavity walls are brought into apposition healing is aided and the lung is given rest.

The various methods of accomplishing the above and their indications and contraindications are discussed.

Operations for the division of adhesions are done in cases in which artificial pneumothorax treatment is rendered only partially successful by the presence of localized adhesions between the parietal and visceral pleura which prevent full pulmonary collapse. Only comparatively narrow bands can be successfully divided. The adhesions are commonly found overlying cavities in the lung. The method of choice is the utilization of the adhesions under the control of the racoopic vision as devised by Jacobus of Stockholm. A light degree of surgical emphysema is a common sequel. The main complication has been severe emphysema either early or late. This has resulted in death in from 7 to 8 per cent of cases. The operation should not be attempted in the presence of pleurisy or in cases with bronchi thicker than 1 cm.

The object of pneumolysis is to produce a localized collapse of the lung to compress cavities. The various media used to fill the space between pleura are divided into three classes: 1. From the abdominal wall: lipomata or omentum, paraffin wax with a small proportion of lithium carbonate and iodoforn portions of the pectoral muscle and gauze packs. 2. Emolysis can be done as an independent procedure or as a supplement to other operations. It is of no value in bronchiectasis as in this condition basal collapse is required and there is no point of contact between the lung and the chest wall. It is most valuable for uncollapsed apical cavities following thoracoplasty for tuberculosis. It appears the ideal medium if enough of it can be obtained. As an independent procedure pneumolysis does not give satisfactory results as the collapse is too localized.

The original operation of simple division of the phrenic nerve has been modified because of the presence of accessory phrenic fibers which join the main stem after its entrance into the thorax. The average raising of the diaphragm after operation was stated by Felix to be 1 cm at the end of inspiration and 3 cm at the end of expiration and it is said that the lung volume is reduced by from 400 to 800 cc. Phrenicotomy is indicated in tuberculous when the disease is subacute and the patient is too ill for major procedures or the liver is in the better lung appears too extensive for artificial pneumothorax treatment. In bronchiectasis radical phrenicotomy has been followed by marked improvement but rarely by a complete cure. It has proved of value also in hemoptysis in this disease.

The indications for thoracoplasty in tuberculosis are fibrotic disease with mediastinal displacement cases in which artificial pneumothorax has been successfully carried out but reacts adversely after when the treatment was discontinued (in the cases pleural adhesions generally prevent further pneumothorax treatment) certain cases of long standing

disease with extensive cavitation pleural effusions which recur in spite of other treatment true tuberculous empyema associated with secondary infection and recurrent hemoptysis resistant to other forms of treatment. The disease must be mainly unilateral. There must be no signs of recent activity in the better lung unless they are minimal and considered to be the result of a spread of the constitution from the other lung. Cavitation in the better lung contraindicates operation. In general there should have been no spread of the disease in the better lung as shown by the physical signs or X-ray examination during the three months preceding operation.

A rule for the eligibility is made applicable before the first entrance of age in the contractive fibrotic type of disease the chest wall tends to flatten. Advanced lesions of the cardio-vascular system are contraindications unless the cardiac embolism is due to mechanical displacement. No laryngeal lesions are not precluded operation but tuberculous lesions in other parts—especially the intestines, kidneys, bones and joints—are generally accepted as contraindications.

In Finland a series of cases shows the two stage operation has been done as a routine procedure as the shock and absorption of toxins into the circulation are less when the compression of the lung is gradual. The interval between the two stages is about three weeks. Jacobus C. O. V. D.

Notes of the Results of Operations Helpful in Promoting Recovery from Pulmonary Tuberculosis. J. J. S. 1917, 369.

All who escape ultimately death from other causes are infected with tubercle bacilli but the majority are susceptible and develop no recognizable evidence of the infection. The primary aims of treatment are to prevent the susceptible from becoming susceptible to lessen susceptibility and to restrict exposures to infection. Secondary objectives are to multiply without delay every method of checking the disease to help the patient to approach as closely as possible the status of non-susceptibility and to maintain the highest level of improvement. Local lesions are the points where the battles against the bacteria are won or lost and the outcome of the struggle depends almost entirely upon the quality and quantity of blood delivered to these areas.

Improvement of the quality and maintenance of the volume of blood are brought about by reducing the exposure to sunlight and repeated transfusions of unmodified blood. According to Cloetta an increased amount of blood is obtained with the least cardiac labor when a triple pleural negative pressures are established but not abolished. Experimental and clinical observations show that the optimum reduction in intrapleural negative pressure follows inactivity and consequent upward displacement of the diaphragm. Under such conditions the lung continues to function and

there is neither hyphæmia nor cellular deterioration from the lack of use. The improved circulation causes an increase in the pleuropulmonary resistance and repair. This defense response can be induced by blocking the transmission of motor impulses through the phrenic nerve.

Another factor of importance is individual competence in the ability to develop energy in excess of the amount required to support inactive existence. This depends upon internal respiration which is commensurate with vital capacity. As vital capacity is materially reduced by inactivation of the diaphragm it is wise whenever feasible to induce a temporary block of the phrenic nerve rather than a permanent diaphragmatic paralysis in order that if the patient recovers he will not be irreparably handicapped by the treatment.

The after-care requires constant watching with periodic physical and roentgen examinations determinations of the vital capacity and blood examinations. Occasionally these will reveal inipient recurrences and at such times a transfusion will accomplish much.

Thoracoplasty is only a means to aid the healing of a local lesion and should be avoided if possible because it produces permanent impairment of external respiration with reduction of the vital capacity. If measures to improve the quality of the blood and the induction of paralysis of the diaphragm are not followed by improvement in a month or two, ribs may be removed a few at a time from below upward or vice versa. The resections should extend from behind the angles forward to include some of the costal cartilages. This produces the maximum effect with each resection and helps to limit the number of ribs that must be removed.

Another objective in the treatment should be the eradication of irreparable lesions interfering with recovery. In a considerable number of cases healing occurs in all but a few larger lesions confined to one lobe frequently the upper lobe. In such cases lobectomy is indicated and is feasible if performed with the caution as described by Graham.

In 100 cases treated during the last two years according to the plan described very favorable results were obtained. CHESTER L. CREAN M.D.

#### Welles E. S. Accessory Thoracoplastic Operation for Collapse of Large Tuberculous Cavities

1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 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3594, 3595, 3596, 3597, 3598, 3599, 3600, 3601, 3602, 3603, 3604, 3605, 3606, 3607, 3608, 3609, 3610, 3611, 3612, 3613, 3614, 3615, 3616, 3617, 3618, 3619, 3620, 3621, 3622, 3623, 3624, 3625, 3626, 3627, 3628, 3629, 3630, 3631, 3632, 3633, 3634, 3635, 3636, 3637, 3638, 3639, 3640, 3641, 3642, 3643, 3644, 3645, 3646, 3647, 3648, 3649, 3650, 3651, 3652, 3653, 3654, 3655, 3656, 3657, 3658, 3659, 3660, 3661, 3662, 3663, 3664, 3665, 3666, 3667, 3668, 3669, 3670, 3671, 3672, 3673, 3674, 3675, 3676, 3677, 3678, 3679, 3680, 3681, 3682, 3683, 3684, 3685, 3686, 3687, 3688, 3689, 3690, 3691, 3692, 3693, 3694, 3695, 3696, 3697, 3698, 3699, 3700, 3701, 3702, 3703, 3704, 3705, 3706, 3707, 3708, 3709, 3710, 3711, 3712, 3713, 3714, 3715, 3716, 3717, 3718, 3719, 3720, 3721, 3722, 3723, 3724, 3725, 3726, 3727, 3728, 3729, 3730, 3731, 3732, 3733, 3734, 3735, 3736, 3737, 3738, 3739, 3740, 3741, 3742, 3743, 3744, 3745, 3746, 3747, 3748, 3749, 3750, 3751, 3752, 3753, 3754, 3755, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3764, 3765, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3779, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 3787, 3788, 3789, 3790, 3791, 3792, 3793, 3794, 3795, 3796, 3797, 3798, 3799, 3800, 3801, 3802, 3803, 3804, 3805, 3806, 3807, 3808, 3809, 3810, 3811, 3812, 3813, 3814, 3815, 3816, 3817, 3818, 3819, 3820, 3821, 3822, 3823, 3824, 3825, 3826, 3827, 3828, 3829, 3830, 3831, 3832, 3833, 3834, 3835, 3836, 3837, 3838, 3839, 3840, 3841, 3842, 3843, 3844, 3845, 3846, 3847, 3848, 3849, 3850, 3851, 3852, 3853, 3854, 3855, 3856, 3857, 3858, 3859, 3860, 3861, 3862, 3863, 3864, 3865, 3866, 3867

in seven and the base of the left lung in seven. The maximal amount of sputum was under 200 ccm in one between 200 and 500 ccm in ten and between 500 and 1000 ccm in two. In no case hemoptysis was the chief symptom.

The X-ray findings were characteristic in twelve cases. Extrapleural thoracoplasty was performed in all under combined regional and nitrous oxide oxygen analgesia with alcohol injection of the nerve trunk of the pleura. In many cases the full length of the lower ribs usually from the third to the eleventh was resected. In one case pneumonia developed following the fourth stage of the operation. In another empyema developed after the second stage. Pleurisy with sterile effusion developed in two of the cases without interfering with the operative treatment.

There were no fatalities following the operation. In all cases there was marked improvement with a decrease in the cough and sputum and a gain in weight. In four cases the sputum decreased from between 200 and 300 ccm to 25 ccm or less in the first four hours in three from between 500 and 1000 ccm to 210 and 300 ccm and 250 and 300 ccm respectively. In four from 60 to 90 ccm in the first four hours. All of the patients were followed for at least three years after the operation. Three have died—of hemorrhage, of fat embolism, and of nonfatal pneumonia.

Hellum believes that extrapleural thoracoplasty is usually with a finger. It produces a collapse of the pleural structures even though it does not eradicate the disease. The patient is greatly relieved as evidenced by a decrease in the cough and sputum. When the symptoms persist a cautious lobectomy or resection of the lower lobe is indicated at any time. The operation is usually performed only in cases of undrained bronchiectasis. When the bronchiectasis is complicated by multiple or multiple pulmonary abscesses the response to the graded type of thoracoplasty is poor and the mortality is high.

In the conclusion of this report HILL states that although he is not at first agree with Hellum that a graded thoracoplasty is indicated in the treatment of bronchiectasis, he now believes that it offers a great deal. He reports two cases in which it caused a decided improvement. In a third case the result of the treatment was not satisfactory as the bronchiectasis was complicated by pulmonary abscess.

MEYER suggested fixation of the pulmonary artery as a preliminary procedure before the thoracoplasty. He reported a case in which this line was done. The patient refused a thoracoplasty but the fixation was completed.

HARRIS reported that his results were satisfactory in the use of rib resection in which surgical rib resection was contemplated. The operative procedure in most cases consists in external removal of the ribs.

ALTON OCTOBER 1910

MILLER J. A. Medical Aspects of the Treatment of Abscesses of the Lung. *N. Y. State J. M.* 1917

LAMBERT A. V. S. Pulmonary Abscess and Its Treatment from the Surgical Standpoint. *N. Y. State J. M.* 1917

MILLER describes a system of management rather than a method of treatment for cases of abscess of the lung. The treatment involves strictly medical supervision for a relatively long period including physical and X-ray examinations, careful measurement of the amount of the sputum, and study of the cough which produces it. The lactinogen of the sputum, the character of the temperature and the progress of all of these factors during at least one week of careful observation. The primary basis of treatment is also to let the patient combine with postural drainage for weeks or months. In the after care rest in a recumbent position is necessary at first for considerable periods each day. These periods are gradually diminished until a normal degree of activity is obtained and a permanent cure effected.

Cough with the expectoration of pus occurs in all cases of lung abscess in which there is communication of the abscess with a bronchus. Letting the patient cough will very frequently or more completely emptying of the cavity by the cough. The patient usually is completely satisfied with the hanging down to the floor by bending at the waist or the edge of a bed. A twist of the body to bring the affected side to a higher level than that of the opposite side is often desirable. This posture should be assumed at regular intervals, usually every three or four hours, to fix it and maintain it for periods ranging from five to fifteen or twenty minutes. The bronchus is felt in the hand from the inverted position quickly, whereas in patients rarely is palpable of it after the first day or two. The sputum is striking when the treatment is successful.

It is generally recognized that many of the secondary tertiary invaders in pulmonary abscess which are responsible for the retardedly found organisms of the sputum are the aerobic organisms, many of which have a prooxidant. Very frequently the use of neohyale in comparatively small doses beginning with 1 ccigrams and repeating at five to five to seven day intervals with increasing doses up to 100 mgm. of 5 ccigrams will very materially improve the condition by clearing up the medium of cough and the usual expectoration.

In many cases bronchocopy may facilitate drainage when it is not promptly established by rest and posture.

Artificial pneumothorax is with it too great a risk to warrant employment as a routine procedure in the treatment of lung abscesses, however, with a fortune to obtain it of circumstances peculiarly in the case of the arthralgic results may be obtained by it.

If a case of acute or subacute abscess is treated by a series of progressive drainage at the end of a month or six weeks of medical treatment it is not

likely that an absolute cure will result from medical treatment alone and operation is indicated. In Miller's experience about 50 per cent of the cases eventually come to operation but because of preliminary medical care the surgical mortality has been materially reduced to 10 per cent whereas previously it ranged from 30 to 70 per cent.

LAMBERT describes lung abscess as a particular type of pulmonary infection a suppurative pneumonitis the characteristic lesion of which is a cellulitis of the parenchyma of the lung with a breaking down of the wall of the alveoli and the formation of a cavity filled with the products of the necrosis which from time to time may be coughed up if there is a communication with the larger branches of the bronchial tree. This cellulitis of the lung parenchyma gives rise also to an oedematous swelling of the alveolar walls with an infiltration by leucocytes and an exudation of serum into the alveolar spaces in a zone of varying extent about the central necrotic focus. The alveoli in the immediate neighborhood of the central focus are usually collapsed with their walls in contact and it is this zone of collapsed alveoli which is frequently spoken of as the wall of the abscess. The exact nature of the wall depends largely upon the duration of the abscess since after a prolonged period of suppuration on the collapsed alveoli lose their respiratory epithelium and become connective tissue strands the interstices of which may harbor many bacteria. Such a group of alveoli are incapable of re-aeration and account for the shadows present in the X-ray picture long after the symptoms of the disease have disappeared and the patient is apparently cured. The bacteria may remain in the tissues a long time and account for the recurrences of the disease so frequently developing in patients who insist on too much activity too soon after an apparent cure.

Such focus when first seen is usually considered pneumonia and is not correctly diagnosed until a free communication with a larger bronchus has become established.

The chief essential of successful treatment of lung abscess is drainage. Of Lambert's series of patients 50 per cent recovered completely under the more conservative forms of treatment without operation. The ideal time at which to drain a lung abscess through the chest wall is when the zone of exudative inflammation has been reduced to the minimum and the central cavity is surrounded by a series of collapsed vesicles representing a more or less discrete wall. This condition may be attained best by conservative methods of postural drainage aided by bronchoscopic in suitable cases and absolute bed rest.

It is important to establish the exact location of the abscess and if possible the point where it is near the chest wall. In the choice of an agent for nitrous oxide with oxygen or ethylene with oxygen are the best general anaesthetics. General anaesthesia has the advantage that if collapse of the lung occurs because of the lack of adhesion the

lung may be blown up and the danger of a possible shift of the mediastinum thereby decreased.

When the chest is opened by the resection of a liberal portion of one or more ribs the presence or absence of adhesions should be ascertained. If no adhesions are present it is wise to prick the wound with gauze and wait for from three or four days to a week until the two layers of pleura adhere. There is danger of establishing a severe type of empyema if the abscess is opened when a pneumothorax is established the smallest opening may prove disastrous.

The use of the aspirating needle on the unopened chest to establish the diagnosis is an unjustifiable procedure for the same reason. The patient should be kept on the side operated upon until his respiratory equilibrium has been completely re-established and the bronchial tree has been emptied of secretions.

1921 H. K. M. D.

Papin F. Two Cases of Stripping of the Parietal Pleura for Pulmonary Suppuration (Deu ch de ölle mnt pleuro parit po suppuration pulm n r) *Bull mém Soc méd ch* 1916 13 1010.

Coussaux A. and Desplas B. and Roux Berger J. L. Old Chronic Suppuration of the Right Lung. Pleurolysis Cure Maintained for Six Years (L'opu at n chro que an en d'opu mnt n dr t pl ur ly e guér on mai tenue depu n) *Bull mém Soc méd ch* 1916 13 1012.

LAPIN reports the case of a patient 41 years of age who after an attack of grippe suddenly expectorated a large quantity of very fetid brown pus during an attack of coughing. Physical and X-ray examination revealed a cavity in the apex of the right lung. Bacteriological examination showed no tubercle bacilli but a mixture of micro-organisms including some which resembled pneumococci. The patient's condition became progressively worse.

Under light chloroform anaesthesia Lapin resected the second cartilage and rib on the right side to just beneath the clavicle and through the breach so made after total suppression of the anaesthesia stripped the parietal pleura away entirely except just in front of the pine. The cavity the size of a fist was exposed. Obliteration of the cavity was maintained by the introduction of several gauze packs. Antirangene serotherapy was given.

The gauze packs were changed from time to time and gradually removed. At the end of three weeks healing had occurred. After the fourth day the temperature remained normal. The expectoration steadily decreased after the operation and ceased in about a month. The cavity closed gradually by secondary intention. The healing was demonstrated by the X-ray. A year later the patient had gained weight and was well and at work.

The second case reported by Papin was that of a pregnant woman 32 years of age who developed pain in the chest, hills fever and the expectoration of very fetid sputum after an attack of tonsillitis. Physical and X-ray examination revealed a cavity



with a fluid level in the upper third of the left lung. The opacity in the roentgenogram extended forward to the second and third ribs.

Under chloroform anesthesia Papin resected the second rib on the left side in front of the anterior axillary line and after stopping the anesthesia a stripped the parietal pleura away except behind. At the end of this procedure a small pleural tear occurred. This was sutured and the wound packed with gauze.

After a very stormy lay due to pneumothorax the patient's condition progressed favorably for a week. On the eighth day premature delivery occurred. The operative wound suppurated abundantly and an infected pneumothorax secondary to the operative wound developed. One week after delivery the patient died of infectious pneumonia. Autopsy revealed an infected pleuroparietal wound leading to a suppurating intrapleural cavity.

Colebrook and Desplas report the case of a man aged 46 years who sustained a shell wound of the right shoulder and lung. No operation was performed. The following year the wound fistula extruded a bone sequestrum. For five years the chronic suppuration persisted with periods of exacerbation and more or less abundant expectoration of pus containing pus, pneumococci, staphylococci, the pneumobacillus of Lindner and numerous anaerobic organisms. No tubercle bacilli were found. Physical and X-ray examination showed two cavities surrounded by sclerosis in the upper lung. The cavities opened into one or more bronchi but did not drain well.

The authors established extrapleural compression by pleurolysis. Under local anesthesia a 6 cm incision was made over the second rib lateral to the costochondral articulation. The very thick pleura was found completely adherent to the lung. Several lung punctures gave the impression of entering a cavity without fluid about 3 cm deep and surrounded by hard calcified tissue. With a vaseline gauze compress over the finger the parietal pleura was stripped away from the posterior axillary line to the fifth rib below to the sternum and up over the apex. The collapse of the lung persisted during deep inspiration. At the end of expiration the operative cavity measured about 5 cm. The lung collapse was maintained by two gauze packs with two large rubber drains.

Postoperatively the wound discharged abundant serous fluid until the drainage was removed. On the twentieth day the wound was scarified without a fistula. Two months after the operation the patient returned to work. During the five years since the operation his general health has been excellent and he has had no cough, expectoration, pain or respiratory trouble. The thorax presents some retraction with hollowing in the infrascapular region where percussion flattens a dull grey preparation without reinforcement. The X-ray shows at the right apex below the clavicle two clear spaces surrounded by sclerotic tissue. The apex is flattened and the

trachea deviated toward the right. Hence according to the physical and X-ray signs the cavities persist but under compression have emptied and are no longer suppurating.

In the discussion of these reports Moulre stated that he had done parietopleural stripping for a cavity of the left apex. The operation was simple and without accident and the obliteration was perfectly accomplished with a gauze pack but the patient died of cardiac collapse the same day. Moulre believes that cardiac compression was produced by a too tight pack.

Roux Berger reported that he had never observed an accident from gauze compression but that the use of the pessary of Gariel requires great caution. In his opinion the duration of the compression of the lung should depend upon the temperature of the expectoration and the absence or presence of retention at the level of the packs introduced after the decoction. He emphasized the necessity of creating a pleural symphysis if it is not already present before stripping away the parietal pleura and suggested for this purpose pneumopercutaneous packing or method of producing pleural irritation. Pneumopercutaneous packs will permit the pleural layers to unite over a limited surface sufficient for the opening of a well localized lung abscess or hydatid cyst but probably not sufficient for extensive parietopleural stripping.

Tuffier stated that in a case of large pulmonary cavity in the right interscapular region he first performed a phrenotomy and several months later resected from 8 to 10 cm of four ribs in the retroaxillary line and stripped the parietal pleura. The upsurge was cured and the patient's general condition is now excellent. Tuffier emphasized that all of the operations of collapse therapy prove the important role of mechanical conditions in persistence of the lesion.

Picor stated that inability to locate the focus exactly and the presence of multiple abscesses are indications for pleural stripping.

Papin and Roux Berger both reported additional secondary stripping of the parietal pleura beyond the pleural symphysis. They believe that thoracoplasty should be reserved for tuberculous or old non-tuberculous conditions with considerable sclerosis and that temporary obliteration by clips or a balloon may be used for other lesions.

A. L. R. C. R. R. R. M. D.

Hearn W. P. and Clerf L. H. Postoperative Massile Collapse of the Lung. J. S. 1917. 1: 34.

The first description of massive collapse of the lungs and its occurrence as a postoperative complication was made by Pasteur. This condition may be the result of a stop valve obstruction of bronchus by mucus plugs and can be considered an obstructive atelectasis.

Hearn and Clerf report the case of a child 8 years of age who was operated upon for the closure of a

gastrostomy fistula which had been formed because of extensive lye burns and cicatricial stenosis of the esophagus. The patient took the anesthetic poorly there was an annoying short irritative cough and considerable trouble was caused by secretions in the mouth and throat. About thirty six hours after the operation the temperature gradually rose to 103.4 degrees F. The physical signs suggested pneumonia involving the left lower lobe.

Bronchoscopy for diagnostic purposes was performed without anesthesia twenty two hours after the operation and about eight hours after a diagnosis of massive pulmonary collapse had been made.

The right bronchus seemed normal and was free from secretion but in the trachea and left bronchus a large quantity of very thick tenacious yellow odorless secretion was found. The mucosa of the left bronchus and its subdivisions showed marked inflammation. When first observed the lumen of the left bronchus was completely occluded by the secretion and no air entered the left lung. The bronchial walls did not move with the respiratory movements. Following aspiration of the secretion the bronchial lumen was seen to dilate and contract with inspiration and expiration a striking change in the physical signs was observed breath sounds became audible over the entire left lung and many coarse rales were noted.

Röntgen ray examination of the chest was made one hour after the bronchoscopic examination. The left lung was found to contain a considerable quantity of air. There was more air in the lung at inspiration than at expiration. This indicated definitely that some obstruction had been removed from the left main bronchus at the time the bronchoscopy was performed.

After eighteen hours all of the physical and X ray signs of pulmonary collapse recurred. A second bronchoscopic examination showed findings practically identical with those made at the first one. After the removal of thick secretion with the aspirator bronchial movements were again observed and the air seemed to enter the left lung freely. On the eighth day after the operation there seemed to be no increase in the pulmonary collapse and only a 2 cm. of secretion could be obtained. The endobronchial appearance showed no change over that noted at the time of the previous examinations. While there was no increase in the activity of the cough reflex and the patient's general appearance showed striking improvement the physical signs and roentgenographic findings showed a recurrence of the collapse.

It was decided that more frequent bronchoscopic aspiration was necessary. Aspirations were therefore done on the eleventh, nineteenth and twenty third day after the operation. The secretion became progressively less tenacious and the physical signs showed a return to almost complete lung function.

MORRIS H. KAHN, M.D.

## ESOPHAGUS AND MEDIASTINUM

Steward F. J. Souttar H. S. Abel A. L. and Layton T. Discussion on the Treatment of Cancer of the Esophagus. *Proc. Roy. Soc. Med. Lo. d.* 1927 22: 241.

In the palliative treatment of carcinoma of the esophagus STEWARD prefers early gastrostomy to dilatation of the stricture or the passage of tubes. Early gastrostomy seems to lessen the irritation of swallowing and prolong life.

For cure radium and surgery are to be considered. The use of radium will cause a large carcinomatous ulcer to disappear but recurrence is almost certain to follow. In many cases insufficient dosage seems responsible for failure and the only hope lies in intensive treatment over a longer period of time. CURTIS employs three tubes in a hollow bougie and gives about 5,000 mgm. hrs. exposure.

Surgical excision of the growth has been attempted by various methods but has been rendered unsuccessful by infection of the mediastinum and difficulty in mobilization of the esophagus and in subsequent suture at the time of reconstruction.

Steward reviews three cases reported by Forek, Lilienthal and Fingers which were treated successfully from the operative standpoint but in two of which death resulted from recurrence. Forek's patient lived for twelve years. Two of Steward's patients survived the operation but died shortly afterward from complications and another survived the operation only eight hours. Steward favors the posterior approach of Lilienthal.

Steward believes that with improvement in the technique better results may be expected as an early diagnosis is possible and the disease usually remains localized to the esophagus and is associated with little secondary lymph node involvement.

SOUTTAR disagrees with Steward as to the operability of these cases pointing out that as a rule the condition is inoperable at the time dysphagia occurs. In a series of 100 cases the average duration of symptoms was four and a half months. Not more than 5 per cent. of cases coming to the surgeon are operable. On the other hand intubation offers a period of comfort of from five months to ten years during which time the patient is able to swallow soft and thoroughly masticated foods. Souttar employs a tube of German silver wire which to prevent regurgitation is flattened and twisted into a spiral. In the introduction of the bougie the esophagoscope is employed. Dilators of different sizes up to 12 mm. are used and the tube is finally slipped into place. Regurgitation of the tube has not occurred and the result compares favorably with those of gastrostomy.

LAYTON believes that although the cases which are to be considered operable are few surgery has a definite place. In many cases intubation after the method of Souttar gives relief. Gastrostomy when indicated should be done early and all patients should be made edentulous.

WILLIAM J. PICKETT, M.D.

Frey S The Dangers of Radium Irradiation of  
Esophageal Carcinoma (Chrenbein R  
1 mb 11 g d 0 ph g ca in m) Z  
1 III f Ch 96 li 89

Of the numerous methods for radical irradiation of carcinoma of the esophagus the introduction of the radium according to the principle of the endless bougie has proved to be the most reliable and successful. This technique which was developed by Kurtzahn has been used exclusively at the Koernigsberg University Surgical Clinic since 1906. However in two of the 200 cases in which it has been employed an accident occurred. In both instances the cap of the metal tube came off and a radium tube containing 30 mm of the element remained in the gastrointestinal tract. In one case examination with a barium platinocyanide screen in the dark room showed that the radium had not changed its position at the end of sixteen hours. An attempt was therefore made to remove it by operation in order to prevent a radium burn but it could not be found. The patient died eight days later of bronchopneumonia. At autopsy no burn was found in the gastrointestinal tract.

In the other case the tube was expelled from the bowel after twenty four hours and the patient showed no evidence of any harm.

After these two accidents the construction of the radium carrier was so changed that the filtration capsule now held the tube by means of a screw which is tightly fastened by means of a screw driver. Both the screw and the metal tube are perforated and when the screw is tightly turned into the tube the two holes pierce each other. Through these openings is drawn a thread which further insures a good closure.

The author has come to the conclusion that following an accident of the kind described an attempt at operative removal of the radium is contraindicated. In the conservative measure such as the use of a liquid diet and catharsis should be employed as it is impossible to locate the tiny tube clinically. A count of protection afforded by the intestinal contents the danger of a burn is not great even when the radium remains in the gastrointestinal canal for as long as twenty two hours. (7)

Lambert A V S and Berry F B The Mediastinal Pathways of Extension of Infection from a Focus in the Mediastinum I J S 97  
x 6

The authors have studied the mediastinum in order to correlate mediastinal shadows of doubtful interpretation in the X-ray picture with certain pathologic infection. The embryology and anatomy of the mediastinum are reviewed. According to their relation to the pericardium the mediastinal space are named the prepericardial postpericardial upper pericardial right and left pericardial spaces.

In the sections reported the spinous processes and the lamina of the first second and

third dorsal vertebrae were removed together with the portion of the spinal cord exposed and an 18 gauge needle was passed through the second intervertebral disk from behind forward until its tip had entered the suprapericardial portion of the mediastinum. Then by means of a syringe or by gravity Gerota's fluid was introduced (usually from 10 to 40 c.c.m. as only the cellular layers of infants were used).

From the mediastinal shadows in the roentgenograms the authors were able to ascertain that the fluid followed certain definite paths to and from the mediastinum and that infection can follow the same course. The following conclusions are drawn.

Infections may spread from a focus in the mediastinum (1) through the broad ligaments of the lungs beneath the visceral pleura and into the substance of the lung down the larger branches of the bronchial tree (2) posteriorly along the bodies of the vertebrae to the endothoracic fascia out of the parietal pleura (3) upward into the fascial plane of the neck (4) downward into the retroperitoneal connective tissue and (5) anteriorly beneath the sternum outside the anterior pleural reflections. Exudates in Zone 1 will give rise to roentgen shadows. Exudate in Zone 2 show large fluid collections which seldom identify the normal mediastinal shadow.

The histologic of various mediastinal infections and neoplasms given. JOR J MALO TY MD

# MISCELLANEOUS

Davidson M Hemoptysis of Obscure Origin A Critical Account of Two Unusual Cases L 1  
97 22

Two cases of hemoptysis are reported. The cause in the first remained uncertain even though an exploratory thoracotomy was performed. In the second the cause was shown by autopsy to be a primary carcinoma of the bronchus.

In discussing the differential diagnosis the author urges the use of the bronchoscopic and X-ray pictures after the exclusion of tuberculosis, morbus cordis and general hemorrhagic diatheses.

The study of hemoptysis of obscure origin should include a complete chemical examination and X-ray examination with and without the use of lipiodol and a bronchoscopic examination.

MERLE R HO MD

Lemon W S The Physiological Effect of Phrenic Nerveotomy I Ch S 97 345

In a series of experiments on dogs either one or both phrenic nerves were severed. The behavior of the animal and the function of respiration were then studied by physical examination and the use of a recording device and the fluoroscope. The intrapleural pressure was measured on both sides. The lungs, diaphragm and phrenic nerves were examined at necropsy grossly and microscopically.

The operation itself is attended with little or no risk for the animal. It brings about no impairment of

of his functions in general or of his respiratory function in particular. The compensation is sufficient to overcome the loss in function of the half of the diaphragm or of that of the diaphragm as a whole when both phrenic nerves are severed; the animal is competent to carry on its usual activities without embarrassment or dyspnea. The thoracic wall, both laterally and at the costal margins, apparently moves independently and the movement is not influenced in direction or extent by paralysis of the nerve regardless of the side operated on. Atrophy appears early in the diaphragm but paralysis appears at once. The paralyzed side can be determined by fluoroscopic examination but not by inspection or palpation of the chest nor by tambour readings of its movement. The paralyzed hemidiaphragm rises approximately one interspace higher than its fellow and remains stationary or takes on short normal movements or in a few instances paradoxical movement so that it may be seen to rise in the thorax a short distance on inspiration and fall an equal distance on expiration. The paralysis on the side of the section is complete and the atrophy uniform. The line of demarcation between the paralyzed and normal muscle is distinct. The response to stimulation is lost throughout the whole of the affected hemidiaphragm. The muscle cells are reduced to approximately a quarter of their normal size. Fatty degeneration was observed but no increase in connective tissue. It is possible that the connective tissue might have been increased in amount if the animal had been allowed to live more than five months after the operation. No observations were made over a longer period of time.

The experimental work reported suggests that respiration is a complicated mechanism made up of the combined movements of various sets of muscles each so controlled that co-ordination of movement maintained yet each so independent of the other that it may be put into dysfunction without disturbing the action of any others singly or combined. Compensation is highly developed and a factor of safety therefore the animal crippled by the loss of even so important a structure as the diaphragm may not only survive but be competent to live an active and normal life. The alternative presents itself for consideration. It may be true that the importance of the diaphragm has been overestimated.

Section of one phrenic nerve causes paralysis and atrophy of the entire hemidiaphragm on the same side. At five months there is no evidence of cross innervation or regeneration. More or the evidence seems to lean to the periphery of the diaphragm through its whole circumference suffers atrophy. If the branches of the intercostal nerves inervate the portion their usefulness would appear to be extremely small and insufficient to prevent atrophy equal to that in other and remote areas or to permit of contraction when the muscle is stimulated.

Paralysis of one half of the diaphragm fails to affect respiration to the extent that aspiration of

tracheal contents is prevented. The size of the thoracic cage is decreased in one dimension only. This reduction of volume produces no physiological alteration from the normal.

Harrington S W. The Surgical Treatment of Intrathoracic Tumors and Tumors of the Chest Wall. *Arch Surg* 1927 xiv 406

Harrington reports in detail sixteen cases of tumor of the chest either intrathoracic or parietal. In eleven the tumor was malignant and in five benign. In two cases of malignant tumor it was intrathoracic. The symptoms are analyzed and the diagnosis indicated.

The clinical differentiation of early malignant and benign tumor of the chest wall is difficult. When the diagnosis is doubtful exploratory thoracotomy is indicated.

Early radical extirpation of malignant tumors followed by radiotherapy instituted at the time of or immediately after the operation has given the best results. In cases of extensive disease partial removal of the tumor followed by the use of radium did not seem to prolong life or relieve the symptoms. Intrathoracic tumors at the apex of the lung may be exposed by cutting the clavicle. Large intrathoracic tumors of the lateral wall of the thorax may be removed by a two stage operation in the first stage of which measures are taken to wall off the general pleural cavity by the formation of adhesions between the visceral and parietal pleura around the tumor.

Ethylene gas is a satisfactory anesthetic. It should be used with a positive pressure apparatus as in any operation the pleural cavity may be opened.

In six of the cases of malignant tumor there has been no recurrence and the patients are well from eleven to eighteen months after the radical removal of the tumor. In one case of intrathoracic tumor a small recurrent tumor was removed after six months. In three cases death followed recurrence within six months after the operation. All of these were cases of extensive malignant disease in children. There were no operative deaths.

Eloesser L. Preliminary Artificial Pneumothorax in Operations on the Open Chest with Clinical Observations on the Sensibility and Reflexes of Various Parts of the Lung and Various Methods of Anesthesia. *Arch Surg* 1917 vi 438

Eloesser regards local anesthesia with or without nitrous oxide analgesia as very satisfactory for operations on suppurative processes in the lungs and extrapleural operations. However the methods of inducing anesthesia in use at the present time are very unsatisfactory in cases with a normal pleura and moderate mediastinum. The main dangers are sudden collapse or expansion of the lung (the so-called pleural reflex (or as Eloesser likes to term it pulmonary reflex) and the cough.

Sudden collapse or sudden expansion of the lung is dangerous because of the associated sudden change

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After the various accidents the construction of the radium arrangement was changed so that the filtration capsule is now held in the tube by means of a screw which is tightly fastened in between the two screw-driver bits. The screw and the metal tube are perforated and when the screw is tightly turned into the tube the two holes lie on each other. Through the opening drawn a thread which then is drawn in a good closure.

The author has come to the conclusion that following the incident of the kind described an attempt at operative removal of the radium is contraindicated. Instead of conservative measures such as the use of a high diet and catharsis should be employed. It is impossible to locate the tiny tube exactly and on account of protection afforded by the intestinal contents the danger of a burn is not great even when the radium remains in the gastro-intestinal tract for as long as seventy-two hours.

F 14 (Z)

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#### Eloesser L. Preliminary Artificial Pneumothorax in Operations on the Open Chest with Clinical Observations on the Sensibility and Reflexes of Various Parts of the Lung and Various Methods of Anesthesia. *La J. S. & G.* 1921 438

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tion in the bl of thrown it ex uckled out of the  
heart Ever with Bra ver meth l of in lucing  
are the it in wh h the lung, n the un pene l side  
of the che t kept functi natg whe the that on the  
side of rated ty n as e ll p e l a p r e l u r e n  
nearly a lead as any kno n at the pre ent t m e the  
per t n is n t lth ut hane r

The humidity of the atmosphere in all the great mountainous regions of the tropical air and the influence of the latest lung cases the area.

He believes that it is the only way to the  
the integrities of the method at the present  
time is to reorganize the pneumothorax. When  
this is done the patient becomes a cut off the  
change in pressure within the pleural cavity and  
will not be able to prevent it.

I will win the preliminary solution of artificial  
pneumothorax is usually free in three sit-  
ting the operation is of time until the an-  
te the solution of either of the first aspect of  
my opinion is that the time is not with real

at the first attempt at ut 750 cm el ita intr luce!

The days later soon is introduced  
 after two or three with a  
 in time all the are then a  
 plural case plural a the me! stirr mu  
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 an the in lu of about f rty m mite be te  
 the ve ti n with a or 3 or 4 ether and dra l m

of parallel yolk in 2 oz of olive oil is successful in only about 75 per cent of cases; in the remainder the patient is made hyperirritable by the procedure.

Liberson considers the mild inflammation thickening caused by the presence of air in the pleural cavity as of distinct value because absorption is much less likely to occur from a thickened pleura.

The autopsies in cases of parapneumonic effusion showed pleural thickening in eleven cases—five of intrapleural pneumonia, four of pulmonary tuberculosis, one of bronchiectasis, three of atypical carcinoma and one of exfoliative carcinoma for which there was no histological evidence.

The second great dunker encountered in an open  
the racetrack was a sea of porphyry and high  
the rim of my head epithelium is so sensitive that  
merely touching it will cause a piece of tissue to  
be torn away. This is a piece of the patient  
and the first operation is difficult for the surgeon  
It is a reflex probably originates in the cultured  
the epithelium. The epithelium of the ex  
posed from the changes from the cultured the  
growth is thereby making the cough reflex

In order to abolish the cough reflex the endotracheal tube is introduced into the tracheal tree at a depth of 2-4 per cent into the wet lung with the larynx in cases with a by neck. If tubal is injected into the trachea. In these cases it is injected into the trachea.

Hic est deile eae that th co-wile pleuric  
 flx (in real is a pulm ary reflex) Ir ghtlow  
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ALTO OTI LE MID

# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Keynes G The Modern Treatment of Hernia  
 B 11 M J 1927 1 173

While great progress has been made in the surgical treatment of hernia recurrences are still frequent

Recurrences are prone to occur in direct inguinal hernia and oblique hernia in older persons whose muscles are atrophied and whose internal ring is stretched

In cases of direct inguinal hernia the author uses a semicircular slip of the internal oblique ligament of the rectus sheath. He turns this down to lie beneath the spermatic cord and sutures it to the inguinal ligament from the pubic bone to a point near the internal abdominal ring

In the large hernia of old persons the structures are sewed behind the cord with sutures of fascia from the thigh

The author discusses the various methods employed in dealing with femoral hernia and concludes by dealing the operation from above through an inguinal incision. This method of dealing with femoral hernia has been described by McKeown. The sac is isolated and removed flush with the peritoneum care being taken to avoid the bladder. The crural anastomosis is closed by suturing the lower edge of the internal oblique to the inguinal ligament and then doing a typical inguinal hernia repair. This method is recommended especially for strangulated femoral hernia

In the treatment of umbilical hernia the author utilizes the Mayo technique of transverse incision and overlapping of the layers but uses strips of fascia lata as suture material

Keynes uses fascial sutures alone in the treatment of postoperative hernia

I EDWARD B. HENSON M.D.

Wagstaff G The Pathogenesis of the So Called  
 Inflammatory Tumor of the Omentum (Lancet)  
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 87

A review of the case of inflammatory tumor of the omentum reported in the literature (basely too) shows a variety of methods the standpoint of the pathogenesis the clinical course and the anatomical findings

According to the case tumors into (1) the postoperative form (2) those not preceded by operation and (3) the postoperative tumors which follow operation of hernia. The effect on the omentum French, Ugeas, as well as Schmitzler and Braun have attributed the tumors to the action of ligatures

—usually silk ligatures but occasionally also catgut ligatures—believing that either the ligature material was not sufficiently aseptic or that the ligation was done in already inflamed omental tissue. However, omental tumors have been known to occur also following hernia operations in which no omental resection was done and also other types of operations such as appendectomy, cholecystectomy and operations on the stomach and uterine adnexa

The nonpostoperative forms usually develop after inflammatory diseases of other abdominal viscera and sometimes after the primary disease, so it has healed (as after appendicitis, cholecystitis, adnexitis, etc.). A third group of inflammatory omental tumors develop in the vicinity of foreign bodies such as swallowed needles or fishbones

On the basis of the clinical course two groups can be differentiated. The chronic forms, those of the Schnitzler-Braun type, appear from a few weeks to a year after the operation and after producing more or less severe abdominal symptoms may disappear entirely under conservative treatment or soften in the center and on incision heal after the emptying of necrotic fat (in oily fluid). A silk ligature or some other kind of foreign body (needle or fishbone). In rare cases symptoms of ileus may result from adhesions to the intestines

The second clinical type is the acute or Kuettnerschmielen type which often begins with fulminating symptoms and is mistaken for an attack of appendicitis or acute cholecystitis. By its sudden appearance the circumscribed necrosis of fatty tissue occurring in these cases suggests an embolic origin

The anatomical pictures presented by various omental tumors also show variations but the pathological substrate is always a central necrosis of the fatty tissue around which there is heaped up fibrin which undergoes organization centrifugally through cell invasion and the formation of granulations

Closely related to the inflammatory omental tumors is torsion of the omentum. Both begin with necrosis of the fatty tissue and lead to tumor formation (in the clinical sense) with fibrinous adhesions to the surrounding tissues. In torsion of the omentum the cause of the tumor formation is the initial compression of the veins which leads to stasis and hemorrhagic infarction due to the mobility of the arteries resulting from the increasing torsion. With the omental tumors of the Kuettnerschmielen type there is embolic or thrombotic occlusion of the blood vessels which lead to similar pathologic anatomical changes. In the remaining omental tumors the circulatory disturbances responsible for the changes are of an inflammatory nature

From his findings in studies on the spontaneous healing of crushing wounds of the liver in dogs the



author has come to the conclusion that this healing is always brought about by adhesion of the omentum. As the result of his investigation regarding the influence that brings the great omentum to the wound in the liver he assumes that since the omentum lacks contractile elements the liver, and in some manner augments the lymph stream flowing toward the diaphragm, and that the augmented current washes the omentum passively to the liver wound where it then becomes adherent. If this assumption were correct not only the intact omentum but also the omentum isolated and dropped into the abdominal cavity would be washed against the injured liver. This however is not true. The isolated omentum dropped into the abdominal cavity remains where it falls ball itself up into an omental tumor and becomes attached to its surroundings. An omental tumor so formed is both macroscopically and microscopically an inflammatory omental tumor as it shows a cellular necrosis of the cellular tissue fibrous adhesions proceeding from the periphery and connective tissue organization from the surface. It has been possible to produce a tumor like structure corresponding to an inflammatory omental tumor only through the production of a circulatory disturbance such as occurs in cases of omental tumors of the Kuettnerschneider type and traction of the omentum in man. The production of such experimental omental tumors is always possible through ligation of all of the omental blood vessels or isolation (resection) of a piece of omentum. The ligation of a tag of omentum also results in an omental tumor distal to the ligation. That the formation of an artificial omental tumor does not require an abdominal milieu is evident from the fact that a piece of omentum lodged preperitoneally as in a Talmor operation and ligated at its place of exit from the abdominal cavity developed an omental tumor. (Nov Loeb LA (Z))

### GASTRO INTESTINAL TRACT

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Diverticula of the gastro intestinal tract are far more common than is generally supposed. They are divided into two classes the congenital and acquired. The acquired are much more common than the congenital. The cause of these intestinal pouches is still more or less a matter of conjecture. The most common of the congenital structures which remain in the adult intestine is Meckels diverticulum described in 1805 and present in 10 per cent of subjects. This diverticulum varies in length and shape and is usually found from 2 to 4 ft above the ileocecal orifice. Peptic ulcer may be present in diverticula in children. The most constant sign in this condition is intestinal hemorrhage. The only logical therapeutic measure surgical removal of the diverticulum.

There are three types of acquired diverticula the inflammatory the traumatic and the evolutionary.

The most widely recognized is the inflammatory. The traumatic and inflammatory types are closely related and may result from perforated ulcer and cicatrization. The evolutionary theory advanced by Lane is based on the disturbed mechanical relations of the bowel consequent upon the assumption by man of the upright position. Such mechanical factors as constipation, enteroptosis and continued distention of the intestinal canal may predispose to the formation of diverticula.

Acquired diverticula are most common in the large intestine and next most common in the duodenum. They may become acutely or chronically inflamed and may contain concretions and undergo malignant changes.

Diverticula without symptoms call for treatment. Perforation with localized abscess or perforation indicate prompt surgical intervention. Chronic thickening of the mass with ulcerative symptoms demand exploratory. The diagnosis of a duodenal diverticulum may generally be considered as indicating a surgical operation.

Diverticula of the chronic type may be eliminated by such simple surgical procedure as cutting band and straightening glands, success by the freeing of angulations back and pressure is eliminated. Extreme cases may call for more radical surgery.

Medical treatment consists in keeping the stool soft or liquid. If habitual constipation is established must be given with great care and with minimal pressure. The administration of bismuth subnitrate by mouth twice weekly is beneficial.

C. R. J. G. L. A. E. M. D.

Burgess A. H. Cancer of the Gastrointestinal Tract. B. C. M. J. 97

In 1924 there were 50,389 deaths from cancer in England and Wales. Of these 26,600—that is more than one half—were due to cancer of the alimentary tract exclusive of the buccal cavity.

Barge states that the gradual onset of indigestion without obvious cause especially in males beyond middle age and persons not previously afflicted with dyspepsia should always excite the suspicion of a carcinoma of the stomach arising as it does in the midst of health (Horder). On the other hand a history of dyspepsia, even of many years, by itself does not exclude carcinoma; the latter may be superimposed upon a very chronic ulcer. In addition loss of appetite, an uneasy feeling in the epigastrium, eructations, eructations of wind, nausea, after an omelet, sibilant freese, indigestion, food and occasional slight vomiting may all be present in the early stages of carcinoma of the stomach. The important point however is that in early carcinoma the symptoms are but little affected by relief diet, whereas in ulcer and other non-malignant dyspepsias dieting gives considerable relief.

The histological examination of the special methiod of physical examination are test results. The search for occult blood in the stool and X-ray



the position it occupies when the body is recumbent but even the stomach does this and there is no evidence that it has fallen from a higher position than it once occupied in the erect position.

Hurst believes that the difference between the hypertonic and dropped stomach is due to anatomical variations from the average normal length. There are just as great variations in the normal length of the stomach as there are variations in the normal length of the trunk and the limbs and in the weights of the brain and the heart. If the organ is short it assumes the diagonal or almost horizontal position of the so-called hypertonic stomach whereas if it is long it assumes the vertical position with the steeply ascending pyloric part of the so-called dropped stomach. These two types of stomach should be named respectively the short and the long stomach and should be regarded as nothing more than normal anatomical variations from the stomach of average length.

The author doubts whether true hypertonus actually occurs. There is a hypotonic stomach corresponding to the atonic dilatation of the stomach of the pre- or enterocolic period but this is rare and in the absence of organic disease is of no clinical significance being found incidentally in routine roentgenological examinations. Severe hypotonus may occur as a complication of pyloric obstruction. In prolonged or neglected cases true atony may result.

The danger of the small part of a long stomach which occurs on the assumption of the erect position may give rise to symptoms, especially if it is associated with true hypotonus but this can occur only when the peritoneal sac covering of the descending part of the duodenum is so taut that it does not allow the entire duodenum to drop when the subject stands erect. The kink produced appears when the recumbent position is assumed. The condition is analogous to nephroptosis with Dittel's crises.

In the stomach in the orthotonic stomach of Schlesinger should be called the stomach of average length. J. COBURN MORSE, M.D.

Strachauer A. C. Congenital Hypertrophic Pyloric Stenosis. *A. S. G. J.* 9: 71, 1917.

In congenital hypertrophic pyloric stenosis the pyloric region is occupied by a sharply defined tumor mass of unknown etiology measuring from 4 to 14 cm. in length and from 3 to 6 cm. in diameter. It is of a firm nearly cartilaginous consistency and covered by smooth glazing peritoneum free from adhesions. As compared with the remaining portions of the stomach and duodenum it is of a whitish pale color. It is logically referred to as the massive hypertrophy of the circular musculature of the pylorus. Up to the third month of age the hypertrophic circular muscle measures from 3 to 7 mm. in thickness. As a result of the tumor formation the pyloric canal becomes stenosed and greatly lengthened mechanically obstructing the outlet of the stomach. Small changes in the mus-

culature of the stomach and the lower portion of the esophagus may be found.

Hypertrophic pyloric stenosis is associated with explosive projectile vomiting after each meal accompanied by isoperistaltic waves. As a result of the obstruction and vomiting there may be no passage of feces or the stools may become meconium like consisting of bile and mucus. The urine becomes scanty dehydrated and acidosis develops and there is a rapid progressive loss of weight. Roentgen ray examination has not been found helpful or necessary.

The condition occurs more frequently in the male than in the female. The operation is never an emergency procedure. Pediatric medical management should always be given for one week. At least from twelve to twenty-four hours is well spent in overcoming the dehydration and acidosis. Gastric lavage should be done. Feeding efforts should be continued and most important water should be given under the skin and by rectum.

The Rammstedt operation in which a longitudinal incision is made through the tumor mass down to the mucosa with spreading has become the standard and safest procedure. The longitudinal incision through the pylorus produces the transverse division of the circular muscle as in cutting of a ring and leaves the muscle without origin or insertion. As a result the circular muscles retract and undergo disatrophism with permanent disappearance of the pyloric tumor mass. The encroachment on the pyloric canal by the infolding of the mucosa is immediately relieved.

In a series of forty-eight cases two gastro-enterotomies and forty-six Rammstedt operations were performed with one death. The operation is performed through a short high upper right rectus or perimedial incision just large enough to permit the delivery of the pyloric tumor and shrink it to prevent any other eversion. The anesthetic of choice is ether. The patient in room should be maintained at a temperature of 80 degrees F. On completion of the operation the child should be wrapped in warm blankets and placed in a crib which has been warmed with hot water bottles. Feeding may be begun from the breast to four hours after the operation. MARIE R. HOOK, M.D.

Bruett. The Flora of the Gastric and Duodenal Floras in Disease of the Stomach and Bile Ducts. *A. S. G. J.* 10: 1, 1918. (Uber die Bakterienflora des Magens und des Duodenums bei Erkrankungen des Verdauungstraktes.)

By studies on a large number of cases the author substantiated the theory that the normally acid and hypertrophic gastric juice is usually sterile but that in carcinoma very numerous kinds of bacteria are to be found among them. Most of streptococci. In a relatively large percentage of cases streptococci and chain cocci gastric and duodenal ulcers were grown from streptococci some of which showed the characteristics of lactacid streptococci described by Bitter. In 52 per cent of cases per-

forated ulcer this streptococcus was found usually in pure culture. It was present also in 18 per cent of cases of diseases of the biliary tract and in some cases of cholangitis.

Of fifty strains of streptococcus 30 per cent resembled the streptococcus viridans both culturally and in its reaction to Schottmueller's bactericidal test. These green streptococci are to be regarded in part as lactic acid streptococci. While in cases of ulcer they seemed to be present only as harmless parasites and on perforation caused only a very mild peritonitis in the bile passages they produced acute or chronic though mild inflammation. However according to the author's experience the colon bacillus plays the chief rôle in inflammations of the bile passages. Staphylococci constitute only 8 per cent of the bacteria. This finding is in contrast to that of Gundermann who found the staphylococcus in 70 per cent of incubated sections of liver tissue.

In the discussion of this paper Strick cited the bacteriological investigations of Meyerlich which have proved of value in the differential diagnosis and prognosis of diseases of the stomach and those of the bile passages.

KONJETZKY called attention to the high disinfecting power of the gastric hydrochloric acid.

LOEHR cited the great importance in the prognosis of perforated gastric ulcer of the change of the gastric contents from acidity to alkalinity with the consequent change of the normally non pathogenic flora to a colon bacillus growth thereby the prognosis of late cases of perforated gastric and duodenal ulcer is generally rendered unfavorable. With regard to the green growing streptococci in gastric and duodenal ulcer Loehr maintained in opposition to Brutté that they are different strains of lactic acid streptococcus the harmlessness of which to man he has proved on himself and others by massive injections. (Lor. 2 (Z))

Pisson, Clélin and Béchot. Observations in Five Cases of Perforated Ulcer of the Stomach and Duodenum (C. q. b. s. e. r. u. n. d. l. r. p. f. d. l. e. t. m. i. d. d. e. m.) B. H. I. I. 5. 1. d. h. 9. 6. 1. 33.

In one of five cases of perforated ulcer reported by the author there was no previous history of gastric disturbance. Although this is unusual the possibility must be borne in mind.

The localization of the maximal pain in the right lower quadrant of the abdomen was in gastric and duodenal ulcer lead to an erroneous diagnosis of appendicitis.

Because of the difficulty of complete exploration of the stomach a perforation in the cardiac region may be overlooked. Therefore an incision should be made in the left side before the integrity of the cardiac region is assumed.

Immediate intervention is indicated after perforation. Only closure of the perforation is necessary. Small neous gastrectomy is not indicated unless the pylorus is obstructed by pre-

existing disease or by the operation or there is reflex pylorospasm. If the patient's condition becomes alarming simple extramucous excision of the phlegmon may be advisable. The patient's welfare depends less upon theoretical considerations than upon the judgment of the surgeon.

LEO M. ZIMMERMAN, M.D.

Kaufmann, J. A Few Remarks on the Medical Aspect of Gastroduodenal Ulcer. *M. d. Cl.*

V. 1. 10. 7. Steiner, W. H. X-ray Findings in Gastric and Duodenal Ulcer. *M. d. Cl. n. V. 1. m. 927 x.*

Fische, H. The Surgical Aspect of Gastric and Duodenal Ulcer. *M. d. Cl. n. Am. 1927. 62.*

Rohdenburg, G. L. The Pathological Aspect of Gastric and Duodenal Ulcer. *M. d. Cl. n. V. 1. m. 19. 7. x. 66.*

KAUFMANN. Gastroduodenal ulcer is usually considered a local disease resulting from disorders of gastric circulation, gastric secretion or gastric motility, physical, chemical and thermic traumatism of the gastric wall, derangements of the autonomic innervation, blood dyscrasias and infections of various kind. While any or all of these may play a more or less important rôle in its development other factors involved are constitutional influences.

The regular occurrence of hunger pain does not necessarily mean ulcer, nor does high gastric acidity as such provoke pain. Routine surgery and especially subtotal gastrectomy is not indicated in all ulcer cases. In general surgery deals with structural products of the ulcerative process and does not reach the deeper causes of the disease. Individualized treatment based on an understanding of the constitutional element will probably reduce the number of cases developing the more severe conditions.

STEWART. Gastric and duodenal ulcers are recognized by roentgen ray examination in from 85 to 90 per cent of cases. Even when the ulcer is small in early cases there are usually secondary signs such as tenderness and spasm. The X-ray findings are most positive in penetrating and perforating ulcers.

FISCHER. The indications for surgical intervention in gastric and duodenal ulcers are: (1) the cases of patients who are not free of symptoms after competent medical management; (2) pyloric obstruction not relieved by medical treatment; (3) repeated hemorrhage; (4) perforation and the penetrating type of ulcer. There is no standard routine surgical procedure. It is only after the abdomen has been opened and the diseased parts have been inspected that the type of operation indicated can be determined.

The conservative operations are gastroenterotomy, the different types of pyloroplasty and local excision of the ulcer with or without gastroenterotomy. The radical procedure is resection of the stomach and pylorus. The conservative operations

if properly performed and used in suitable cases will cure a large number of gastric and duodenal ulcers the percentage being estimated at from 70 to 90 per cent. However in a smaller percentage of these cases the symptoms recur and an ulcer develops which may be a complication. The author believes that radical operative measures give the best result and he restricts the conservative measures to patients who are poor risks or present insurmountable operative difficulties. In both gastric and duodenal ulcers the cases are treated together with the exception of the stomach is resected and an end to end anastomosis of the stomach and jejunum with a long jejunal loop is performed. The immediate operative mortality is from 5 to 7 per cent. This is higher than that for gastro-enterostomy but the remote mortality of gastro-enterostomy is so high that the total mortality exceeds the mortality of resection. Hypoacidity or anacidity is produced and protects the patient against future ulcers in either the stomach or the small intestine. The patients remain symptom free and are not obliged to restrict their diet.

**ROMBERG.** The pathology of the local condition of the stomach and duodenum is ill known but the constitutional factor is positive and more secure. It is likely that a large number of gastric ulcers heal rapidly and do not produce symptoms. Many ulcer cases present symptoms referable to the appendix or gall bladder before the occurrence of ulcer symptoms. In such cases lesions of the ganglion cells of Auerbach and of Meissner's plexus have been demonstrated. It is possible that similar lesions are present in other parts of the gastrointestinal tract. In radical gastric resection it may be the section of the nerve supply rather than the removal of the acid glands that causes the improvement.

In the discussion following this symposium LAMOREY stated that the percentage of ulcer that can be demonstrated roentgenographically still positive findings is not as high as 95. Distinct penetrating ulcers can be cured by medical treatment. Had ulcer resection is not to be a last resort treatment.

**HESET.** Whenever possible cases of gastric or duodenal ulcer should be treated medically. If a relapse occurs surgical treatment of a conservative nature is indicated. A difficult surgical operation in the patient should be reserved for the clinician for further observation.

**LAMOREY.** In 95 per cent of cases ulcer cannot be diagnosed from the roentgenological and in open ulcer the ulcer is not healed before it is treated from a healed one. Because of the possibility of the development of a new ulcer the treatment is more frequently indicated in the patient than in the duodenal ulcer.

**GARNER.** The secret and immutability cannot be determined by duodenal ulcer. The alimentary canal is not alkalinized and the diet must therefore be changed in feeding the patient with gastric

secretion which is usually associated with duodenal ulcer.

**BILGARTEN.** Cases of gastric neurosis and ulcer of the stomach, how a decreased blood calcium and also reserpt markedly to injections of pilocarpine in inducing an autonomic function in the direction of vagotonia. The condition may be a neuralgia or neuritis of some of the branches of the autonomic nervous system innervating the stomach and surgical treatment consisting of resection of the gastric branches of the autonomic nerves or their ganglion may offer a better cure than subtotal gastrectomy.

**TORRE.** Gastric resection (the operation of choice only in cases in which the gastric ulcer is in the lower half of the stomach. If the patient is in good condition on gastric resection results in perforated ulcer of the stomach. Ulcers in the cardia are best treated by gastro-enterostomy but may be treated also by injection of concentrated protein. In duodenal ulcer simple gastro-enterostomy is the best procedure.

**STEFAN.** The surgical treatment of gastroduodenal ulcer cannot be standardized. Active pyloric ulcers or ulcers of the lesser curvature in the lower half of the stomach should be treated by gastrectomy. An ulcer which appears innocent may be malignant and must be resected. Because of the high incidence of ulcers high in the lesser curvature and extensive duodenal ulcers should be treated by a full thickness resection or cauterization combined with gastro-enterostomy. An ulcer of the lesser curvature should be treated by gastro-enterostomy. In perforated gastric ulcers simple suture of the ulcer with an antileptic agent should be done if the patient is in good condition. Primary resection is usually contraindicated but may be successful in certain favorable cases.

Small and acute duodenal ulcers call for a conservative rather than a radical resection. In chronic ulcer penetrating into the pancreas or other vital structures should be treated by the technical difficulties are not to be regarded as a contraindication to the operation. The operation may be done in stages first a primary gastrectomy followed by a second operation a partial or subtotal gastrectomy. In perforated duodenal ulcers the lesser should be closed by suture and if the perforation is no older than twelve hours a delayed gastrectomy may be performed. The need for a general jejunal ulcers follows gastroenterostomy is about 5 per cent.

**GILK.** Simple and perforated gastroduodenal ulcers should be treated by gastroenterostomy while resection should be reserved for cases with repeated hemorrhage or in which malignancy is suspected. In gastric ulcer resection is the method of choice. Gastric resection may be performed for acute perforated and chronic in which the general duodenal contraction of the subtotal gastrectomy. Not all patients with stress ulcers of the gastroenterostomy have a good ulcer.

**BLACKY** Since gastroduodenal ulcers may be due to disorders of the autonomic nervous system it is possible to influence the splanchnic organs by treating large regions of the skin with the X rays. Physical treatment of the autonomic nervous system has given excellent results.

**GERSTER** There may be a racial disposition to ulcer formation. The use of clamps and the serial ligation of vessels may predispose to ulcer recurrence.

**MYER** When a diagnosis of gastroduodenal ulcer has been correctly established the patient should be put at complete rest and on duodenal feeding. Intravenous injections of novoprotein are also advisable. If there is no improvement after several weeks surgery is indicated. It appears to be the consensus of opinion that resection is best for most gastric ulcers whereas gastroduodenotomy is preferable for duodenal ulceration.

CYRIL J. GLASPELL, M.D.

Carter, R. T. The Operative and Postoperative Treatment in Patients with Gastric and Duodenal Lesions. *Surg. Gynecol. Obst.* 927, vol. 74.

The operative technique for gastric and duodenal lesions having been fairly well standardized the author believes that the other factors contributing to the success of the treatment should be standardized.

#### PRE-OPERATIVE TREATMENT

Important features to be determined before operation for a gastric or duodenal illness are those related directly to change in the physiology.

**OLIVIER** The presence of obstruction may be determined by X-ray examination and from a history of vomiting. In the event of obstruction with accumulation and stagnation of food gastric material functions interfere with such an extent that gastric hygiene becomes important. Repeated aspiration of the stomach tube two or even three days before operation is necessary. This should be done twice or three times a day. The solution used should contain 5 minims of dilute hydrochloric acid to the quart.

**2. Hydric balance.** The titration of the stomach in the absence of free hydrochloric acid is determined by the test meal secretion of the wound by contamination. The stomach content may be prevented by pumping and the alkalization of hydrochloric acid by mouth. Both in the water and in the food that taken a drink (arterial) or 6 hr. to the linear glass (arterial). When hydrochloric acid is present in normal or excess equilibrium implanting the gastric juice should be operative to increase the stomach will be sufficient.

**3. Iron.** In the anemia from a lack of iron the extent of the area of the stomach is inadvisable until the anemia has been treated by more than the ordinary implant replacement of blood. Transfusion is moderate in amount

and repeated two or three times over a period of two or three weeks greatly reduce the possibility of death from shock, infection or cardiorenal failure.

**4. General metabolism.** No patient except in an emergency should be operated upon until knowledge has been obtained of the blood chemistry and carbon dioxide combining power.

**5. Acidosis.** A carbon dioxide combining power below 40 indicates an acidosis equivalent to starvation. Symptoms of acidosis begin when it reaches 35. If possible operation should be delayed until sugar administered by mouth and sodium bicarbonate given in 4 gm. doses daily until the carbon dioxide combining power is above 50. When delayed contraction of glucose should be given either subcutaneously in 3 per cent solution intravenously in 5 per cent solution or rectally in 10 per cent solution or by a combination of these methods. When the carbon dioxide is below 30 glucose 3 per cent and sodium bicarbonate 1 per cent should be administered in 800-cm. doses until the carbon dioxide is 50.

**6. Alkalosis.** When the carbon dioxide combining power is above 80 it is never wise to operate in any emergency except that of ruptured viscous. To reduce it sodium chloride given intravenously in 2 to 4 per cent solution in doses of 1000 cc. is sufficient in the case of patients with obstruction. In the cases of patients who have had a long Shiley routine the alkali should be discontinued one week before the operation and a regular diet prescribed. Alkalosis due to vomiting can be relieved by giving 15 minims of hydrochloric acid to 6 oz. of water by mouth and 100 cc. of normal sodium chloride subcutaneously each day.

**7. Catheterization.** In the twenty-four hours preceding operation catheterization is contraindicated.

**8. Catheterization.** Ordinary tap water with the addition of 10 minims of hydrochloric acid to the quart may be used. The last lavage should be done five hours before the operation.

**9. Feeding.** In case of non-obstructive lesions feeding should go on as usual until eight hours before the operation. In cases of obstruction fluid with carbohydrate should be administered in the form of tea or orange juice, ice cream, sherbet, eggnog, etc. during the first six hours of the twenty-four hours even though gastric lavage is being practiced twice daily. Feeding should take place one hour after lavage and after the last lavage nothing should be taken into the stomach. Throughout the twenty-four hours the mouth may be used. If food cannot be taken by mouth the use of obstruction it should be administered subcutaneously in 3 per cent glucose and normal saline solution.

#### POST-OPERATIVE TREATMENT

**Pain.** It is usually prevented by an injection of morphine before consciousness returns. With the first movement in the presence of regular expiration and pulse rate a hypodermic injection of morphine for adults under 150 lbs. and 4 gr. for adults over 150 lbs. should be administered.

This enables the patient to go from the sleep of ether into that of morphine. The dose should be repeated in 6 gr injections for patients weighing less than 150 lbs and 1/2 gr injections for those weighing more than 150 lbs often enough to insure sleep or quiet for the first eight hours.

2. *Restlessness and general discomfort.* Restlessness is a very important symptom being an evidence of hemorrhage or of fluid starvation. It is not a symptom to be relieved by morphine or other sedatives unless the patient is unable to overcome the necessity for the institution of measures for permanent relief. The feeling of unrest is associated with stretching of the entire body as well as by a great desire for a long drink of something acid but a drink of tap water will satisfy.

3. *Position.* When the patient is quiet the head rest should be raised and the foot rest put in place to allow the stomach to function by gravity.

4. *Pulse.* The pulse should be taken every hour for 24 hours in order that in the absence of vomiting immediate postoperative hemorrhage may be discovered clearly.

5. *Feeding.* After the first 24 hours or 30 oz of water 1/2 mouth with sugar and flavoring such as tea may be given every three hours in the case of a tolerant patient 4 oz of water with 4 per cent glucose. Less the patient is emaciated or hypodermochysis is not indicated. In cases with emaciation 1000 cc of normal saline solution and 3 per cent glucose should be given subcutaneously during the second 24 hours. By these means 6 oz of fluid should be given by mouth and 6 oz by rectum and any further need made up by hypodermochysis up to 500 cc with carbohydrate yielding 300 cal.

In the second twenty-four hours the intake should be fluid with a carbohydrate content sufficient to replenish the store of carbohydrate utilized during the first twenty-four hours and furnish an additional amount for energy consumption of the tissue toxins. Flavored and sweetened fluids in 3 oz doses should be given every two or three hours. If nausea or epigastric distress occurs they should be discontinued for from four to six hours. If the nausea or epigastric distress till persists after six hours the stomach should be lavaged and the feedings resumed in 1-2 hours every two hours and another trial made with the larger doses after eight hours. Fluid should never be given by rectum on this day. Hypodermochysis is indicated for emaciated patients and the whole mix.

The blood should be tested for carbon dioxide at the same time. If the carbon dioxide is below 40 3 per cent glucose should be administered subcutaneously. If the carbon dioxide is below 30 5 per cent glucose should be given intravenously in amounts of 500 cc in 1-2 hours. The carbon dioxide in 10-gr doses dissolves in tap water should be given every four hours. An additional 2 per cent should be used in the solutions given intravenously. This will aid in re-establishing the acid alkal balance.

All fluids should be given either cool or at a temperature above 60 degrees.

During the first day 4 oz of tea tap water and orange or lemon phosphate may be given every three hours.

On the fourth day feedings should be made up of peptonized milk thin gruels custards and junket with cream and sugar 4 oz every four hours with fluid restriction at least 500 cc.

On the fifth day the feedings should consist in bouillabaisse potato with butter soft toast cereals gruels purée of peas and spinach in live feedings 4 oz. At least 1000 cc of water should be taken.

From the sixth to fourteenth day because of the danger of sepsis the food should be made up of starch as a base with sufficient fat and other substance. On the fifth day a poached egg and minced chicken may be added. The fluid should be given in amounts of 5 oz five times a day.

After the fourteenth day the fluid restriction should be followed and rigidly insisted upon for three months.

8 a.m. milk 4 oz cream 2 oz to be taken with meal cooked cereal with cream sugar one bowl a poached or soft boiled egg apple sauce stewed peaches or stewed apricots one portion.

11 a.m. milk 4 oz cream 2 oz

1 p.m. milk 4 oz cream 2 oz to be taken with meal creamed vegetable soup scraped or ground lamb or beef minced chicken or the heart of a lamb chop mashed potatoes macaroni rice mashed peas creamed celery or a paragon custard or pudding with cooked fruits.

3 p.m. milk 4 oz cream 2 oz

7 p.m. milk 4 oz cream 2 oz to be taken with meal creamed vegetable soup rice macaroni cereal any form of egg table purée one glass cooked in any manner except not fried.

After three weeks any cooked and finely divided vegetables may be given with the exception of onions beans cauliflower cabbage beets and rhubarb.

6. *Catharsis.* Milk of magnesia 1 to 2 oz in twenty-four hours may be given during the second twenty-four hours or thereafter.

#### COMPLICATIONS

*Hemorrhage* into the stomach or intestine always occurs in the quantity. If there is a rapid and marked increase in the pulse and the lividity of the surface of the body stopping it. Signs of bright blood in the lavage after three days repeated at two hours intervals indicate hemorrhage which is best controlled by the usual surgical measure. When signs of hemorrhage continue to the danger point transfusion should be used. Autolysis is increased for any type of vomiting after operations upon the stomach or duodenum and is never as certain as gastric lavage with a tube.

When a gastrotomy or enterostomy or a total operation has been performed the vomiting of bile after the first eight hours indicates that the duodenum

contents are entering the stomach. In the presence of this very significant sign the stomach tube should be used every twelve hours. Feedings by mouth with the exception of those given immediately after and three hours after lavage should be stopped until the return from irritation of the tube shows 5 oz or less of bile and stomach contents. When this point has been reached the feedings should be resumed and the feeding should be checked at the end of twenty-four hours. This type of vomiting will usually subside on the third or fourth day unless it is due to mechanical obstruction other than that produced by edema of the tons.

Intermittent and copious vomiting beginning suddenly after the stomach contents have been apparently normal for a period of from five to seven days indicates some form of so-called vicious circle. The chief danger is either alkalosis or acidosis. Gastric lavage should be done as often as the patient feels distention or there is an increase in the pulse rate of 20 above the average. A 1 per cent solution of warm saline solution in quantities of 10 oz should be introduced into the stomach and the return flow is released. The chloride and fluid intake should be kept up and glucose administered by rectum subcutaneously, and in extreme cases by vein. The patient should be treated in this manner for from ten days to two weeks if there is no visible peristalsis or sign of distention after gastric lavage.

**1 day.** When alkalosis is suspected and the carbon dioxide content of the blood is below 30 glucose 3 per cent solution should be given in amounts of 800 c.c.m. should be administered intravenously every five hours. The carbon dioxide above 35. After this point is reached 3 per cent glucose should be administered subcutaneously 10 per cent glucose a 14 per cent sodium bicarbonate by rectum and glucose should be included in all food.

**1/2 day.** The treatment of alkalosis is both preventive and curative. Infusions of 1 to 4 per cent sodium chloride solution should be given in amounts of 800 c.c.m. every eight hours until the carbon dioxide level is below 30. Hydrochloric acid by rectum 1 cc. 1/2 liter. In severe cases in which the carbon dioxide level is below 20 sodium chloride and hydrochloric acid should be given by stomach and mouth. 1 liter of 10 per cent sodium chloride administered intravenously. The patient should be kept in bed and not allowed any alkaline food when repeated frequently.

**3 days.** Frequent gastric lavage with the tube and the use of large amount of warm saline solution will relieve shock by emptying the stomach of blood clot, etc.

**1 1/2 to 2 days.** Obstruction of the jejunum or ileum may occur. The former may be clapped at any time during the first two weeks of convalescence. It is marked by rapid successive rises and falls in the abdominal distention and urea. The carbon dioxide level may be raised or lowered in eight to ten hours that is with alkalosis in its most extreme form. The decision to operate may be based upon the blood findings alone. The early intra-

venous administration of sodium chloride in a 2 per cent solution and in amounts of 800 c.c.m. should be done every five hours. Hydrochloric acid should be administered by mouth and by rectum to the limit of tolerance of the mucous membrane. Operation should not be delayed unless there is little or no chance of recovery from it. In obstruction of the colon the treatment is essentially the same but there is more time to spare as the danger is late and death more remote.

**Peritonitis.** There are two distinct periods during which peritonitis occurs, denoting contamination due to intestinal or stomach contents. During the first forty-eight hours the contamination may be due to soiling at the time of operation and between the ninth and eleventh days to leakage from a suture line which fails to heal before the suture material lost its function.

Sudden peritonitis occurs on the ninth or tenth day when the joined edges fail to heal. Death results after from thirty-six to forty-eight hours unless the leakage is in the lesser sac in which instance a subphrenic abscess results. An abscess anterior to the liver may result from a slow leak. Death usually occurs in such cases from infection or starvation. As soon as the purulent discharge is replaced by normal gastric or duodenal contents an attempt should be made to pack the sinus with plain gauze and pull the edges together with a suture. There will be little distention of the abdominal wall if the dressing is changed daily and the wound cleansed with alkaline solution and covered with vaseline gauze.

Recovery depends largely on the nursing as frequent and concentrated foods in small amounts must be urged upon a patient who repels by the sight of food. Blood analyses every three days insure against an unexpected complication of acidosis or alkalosis. Supplementing the fluid intake by subcutaneous injection of saline solution should be a daily routine. Glucose should not be used as it cannot be employed daily for the length of time required without causing inflammation. Rectal feedings should not be given because they soon cause irritation and are the cause of the diarrhea which requires more rigorous method for the administration of food and water. The diarrhea is either caused or soon followed by an acidosis which can be checked only by the administration of sodium bicarbonate by mouth alkaline colonic irrigations and withholding fat by mouth.

RAYMOND CRESS, M.D.

Elieberg, A. von. Our Experiences in the Treatment of Gastric and Duodenal Ulcer (Ueber die Behandlung des Magengeschwürs und des Zwölffingergeschwürs). Berlin, 1906.

The master of surgery on Elieberg reviews his experience in the surgical treatment of gastric and duodenal ulcer. After a discussion of the many and often conflicting theories of the cause of gastric



ulcer he concludes. Unfortunately the etiology of ulcer is not yet clear. This is true at least in the majority of cases. In exceptional cases it may recognize the etiological agent as a gross chemical injury causing erosion of the stomach. In rare cases a cutaneous burn plays a role. In many cases a cause favoring the formation of an ulcer is not alone responsible for the lesion. None of the ulcers so far produced experimentally have been similar to those usually seen by surgeons.

Von Eiselsberg believes that the diagnosis of ulcer is well established (Haudek Clairmont ulcer niche). In his own cases a erroneous diagnosis was made in only 1 per cent.

Following a review of the history of gastric surgery, the author reviews his own experiences. In one of the first cases operated upon according to the Billroth technique the ulcer recurred and a massive fatal hemorrhage resulted. With von Mikulicz he considers gastroenterostomy the operation of choice for all except carcinomatous ulcers. But since this procedure may be followed by repeated hemorrhages from the ulcer which is left undisturbed by the operation he does a unilateral pyloric exclusion in cases of open pyloric ulcer. From this procedure he has obtained very good results. Although peptic ulcer is believed to occur more frequently after this operation than after gastroenterostomy (von Hauber Clairmont Denk) the former has numerous adherents especially in America. Finsterer upbraided it by resecting a large portion of the prepyloric region to decrease the acid secretion of the stomach but even this procedure was followed by peptic ulcer.

Including all complications with the exception of free perforation of the ulcer the mortality in 1693 cases treated by von Eiselsberg in the period from 1905 to 1915 was 110 deaths. Thirty seven deaths were due to peritonitis, four to postoperative hemorrhage, three to postoperative bleeding, two to pancreatitis, two to subphrenic abscess, one to gravitation abscess, ten to general anesthesia at the time of operation, due to bleeding of the ulcer, twenty nine to pneumonia, even to tuberculous pleurisy, six to myocardial degeneration, four to a uterine pulmonary abscess, one to tuberculous one to pericarditis, six to erosion of the ulcer after gastroenterostomy, two to anemia, one to paratyphoid and one to ulcerating enteritis.

On the basis of his extensive surgical experience von Eiselsberg designates resection as the operation of choice not only for ulcer but also for stenosis. This operation is followed by a cure more frequently (the mortality in von Eiselsberg's 151439 cases as only 3 per cent) and by peptic ulcer less frequently than other procedures. A disadvantage is the frequent occurrence of subsequent development of carcinoma. It is contra-indicated, however, in the cases of very strict stenosis when the ulcer is situated at the cardia, those in which the prepyloric area is involved, and those in which there is a large ulcer injuring the common duct.

Von Eiselsberg has never performed the operation of Madlener viz. resection of the antrum and pylorus leaving ulcers near the cardia behind. When resection is too dangerous he does a jejunostomy but even this procedure fails at times and the presence of a fistula is unpleasant to the patient.

If the findings of palpation and inspection are negative von Eiselsberg considers a resection as the proper form of operation. Although his pupil Liek hesitates to perform an operation to close. In a few cases he performed a pylorotomy (Payr) but in one instance this was a therapeutic failure.

In the case of a stomach with a tendency toward the formation of ulcers any type of operation may fail.

The author cites the investigations of Denker on peptic ulcer of the jejunum. In such cases a jejunostomy is the simplest procedure. The question as to whether resection will remain the method of choice von Eiselsberg would like to answer in the negative. He states that if internal medicine should find a method of treating ulcer which would render operation unnecessary he would gladly turn all of his cases over to the internist as would many other surgeons.

Loew (7)

Euterich G. B. and Bueemann W. H. Carcinoma of the Stomach. The Present Status of the Diagnosis and Prognosis. *J. Am. M. A.* 9: 71-75, 1915.

This article is intended to emphasize the menace of the less familiar circumscribed carcinomatous gastric lesions.

There are three types of small gastric ulcer: one benign and two malignant which are clinically indistinguishable. The benign type is the most common, tends to remain benign and often has its onset late in life. In 43 per cent of these cases the patients pass middle life without knowledge of the disease. In the light of recent pathological research the carcinomatous ulcer is much more common than the benign ulcer undergoing carcinomatous transformation and is of a higher degree of malignancy. Eighty per cent of carcinomatous ulcers occur in patients under 50 years of age. The fact that it is frequently impossible to differentiate either type of malignant lesion from a benign one by present methods makes every gastric ulcer potentially malignant. A carcinoma of the ulcer occasionally coexists with a benign ulcer. Therefore the management of gastric lesions and going much further treatment should be kept under the closest supervision.

The necessity for diagnostic objective tests and laboratory examinations or exploratory operations is in the end related to the skill of the roentgenologist. Roentgenological criteria of operability are more accurate than those of operability.

Intrinsic gastric lesions that simulate carcinoma are gastric phlebotomy, lymphoma and benign tumor. Intrinsic lesions are carcinoma of the pyloric carcinoma of the duodenum, a carcinoma of the duodenum or carcinoma of the gall bladder. Of the

various constitutional diseases that may cause symptoms similar to those of carcinoma the most important is pernicious anemia.

Important advances have been made in the preparation of patients and in any other exclusive breast examination method with regard to the condition rendering the procedure most unsuitable in general a peristaltic lymphatic involvement fifty two and five tenths percent of patients with uterine lymphatic involvement were well and free from recurrence three years after operation. In the group with lymphatic involvement the percentage is reduced to 15.

Leslie I. and Joseph B. Castro Enterostomy and Intrastomal Inertial Capillary of Radiation in Cancer of the Pyloric End of the Stomach. *J. A. C. C. A. A.*

The enterostomy is the most frequent type of cancer. It is not the only one in men and is the only one in women occurring in the stomach. Most of the cases requiring examination are so far advanced that urgent interference is impossible.

For the purpose of the case study, the enterostomy is the most common type of cancer. It is not the only one in men and is the only one in women occurring in the stomach. Most of the cases requiring examination are so far advanced that urgent interference is impossible.

Schwartz, A. A. Clinic on Surgery of the Stomach.

The first of the general reports with a list of the patients and a list of the patients.

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Heber, J. S. The Cancer of the Stomach.

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for lesions that may vary greatly. A malignant ulcer in the first part of the duodenum is extremely

hazardous to give the same in situations for an extensive gastrectomy as cancer of the pyloric end of the stomach or a large infiltrating peptic ulcer along the lesser curvature. In a case of limited ulcer in the first part of the duodenum without adhesions and with much infiltration in which the ulcer can be excised and the pylorus of the pyloric sphincter and the pyloric end of the stomach can be weakened by an incision a pyloric pyloric plasty is the best procedure. The principle of this operation is the same as that of excising or cauterizing an ulcer within the grasp of the sphincter artery forceps. The pathologic condition is eradicated and the parts are given at least partial physiological rest by weakening of the pyloric muscle without material alteration of physiological function.

When such a small well circumscribed ulcer has perforated the first part of the duodenum this type of gastrectomy is preferable to a gastrectomy. It may be useful in a narrow constriction though in cases with marked tension or extensive adhesions the results have been usually limited by the fact that physiological function cannot be restored consequently some other type of procedure should be done preferably a Finney pyloric pyloric resection or enterostomy. When there is much infiltration around a peptic ulcer the sutures are not likely to hold in such cases or junction of the pylorus with a tout kangar tendon tied just tightly enough to occlude the lumen without necrosis and a posterior gastrectomy is the method of choice.

Ingastric ulcer the usual or more recent more incline to a gastrectomy of the right half in total or a gastric or sleeve gastrectomy. A large extent of the ulcer. If the ulcer is small and the excision seems indicated it is better to think of the physiological type of pyloric plasty in order to give the physiological rest to the stomach and the natural muscular rest to the pylorus and the results make it easier to the stomach and the stomach to empty itself.

In recent years the peristaltic he seems to be the first of the general reports with a list of the patients and a list of the patients. The first of the general reports with a list of the patients and a list of the patients.

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alignment with the upper border of the duodenum and (2) flaring open the duodenum by making an incision about 1 in or 1 1/2 in in its anterior wall. Thus the physiological alignment of the lesser curvature is preserved and the danger of obstruction is obviated. It is much easier to fold in redundant tissues along the lower border of the stomach where the stomach and surrounding mesentery and omentum are mobile than it is along the upper border which is much less accessible.

If the partial gastrectomy is done for cancer and particularly if the patient is old it may be done readily under local anesthesia. Within the past year Horsley has performed this operation under local anesthesia on two patients with gastric cancer, one 71 and the other 73 years of age. Both stood the operation well and are now in good health. He believes that in the cases of old persons no drug that is sufficiently powerful to produce unconsciousness can be administered with impunity, no matter how much safer it may be than the older anesthetics. Even the use of ethylene which is probably as safe as any general anesthetic is inadvisable. In the cases of younger patients with more vigor and particularly if the operation is done for peptic ulcer there is no objection to general anesthesia. Often such anesthesia as that induced with ethylene may be combined with infiltration of the abdominal wall with novocain as practiced by Crile which gives the effect of a mild general anesthetic with relaxation of the abdominal wall by the injection of novocain. The technique of the operation is described in detail.

About an hour or two before the operation the stomach should be thoroughly washed out with salt solution or a weak soda solution. If local anesthesia is employed a 1 per cent novocain solution to which has been added about 2 drops of the usual adrenalin solution to the ounce is used in freshly prepared Ringer's solution. After opening the abdomen Horsley infiltrates the peritoneum for a distance of several inches around the wound and then rather extensively injects the gastrohepatic omentum, the tissues just above and below the duodenum and the retroperitoneal tissues along the base of the mesocolon. Care is taken not to insert the needle too deeply for fear of injuring a vein but it is introduced well beneath the peritoneum. The injections are fully carried out they render the operation almost painless.

After the operation the convalescence is remarkably satisfactory. The stomach seems to empty better than it does after a lesser operation such as pyloroplasty or gastrectomy. Horsley makes a practice of washing out the stomach about six hours after any gastric operation to see if there is bleeding and to empty the stomach contents. If there is no bleeding this gastric lavage is repeated every 4 hours. He has never found more than 6 oz of retained material except on one occasion when there were 10 oz. The patient is given 1/2 oz of water an hour for the first day, the amount then

after being somewhat increased. No food is administered until about the third or fourth day after the operation.

If necessary intravenous glucose solution may be given. This is often used also in preparation of the patient for operation about 1000 or 1500 ccm of 10 per cent glucose solution in Ringer's solution being given. The Ringer's solution should be made with freshly distilled water and the glucose solution added. If the water is freshly distilled usually no reaction occurs. Unless the patient is in shock the solution is given at the rate of 5 to 1500 ccm an hour though at first more can be administered. In this way the patient is not only prevented from becoming dehydrated but is given sufficient carbohydrates to tide him over the first few days.

Careful supervision of the diet is essential after all gastric surgery. For weeks or months after the operation the diet should be controlled by a competent internist.

During the last three years Horsley has done fifteen operations according to the described technique. Four of them were for cancer. In one case the cancer was extensive and the stomach was slightly adherent to the pancreas. After the removal of the stomach a small superficial mass in the pancreas was excised with the cautery. This proved to be inflammatory, however, and not malignant. Peritonitis followed the operation and opened the raw surface of the pancreas to an inflammation which resulted fatally. With this exception there has been no death in the series though the operation was done for gastric cancer in a 68-year-old patient with an aortic stenosis, a patient of 71 years and a patient of 74 years. In the cases operated upon for peptic ulcer there were no deaths. (See C. R. BIRNBAUM, M.D.)

#### GAY, SIR H. Acute Intestinal Obstruction Due to Intra Abdominal Calcification. *Br J Surg* 1917, 179

All cases of intestinal obstruction are urgent. Besides the mechanical obstruction to the passage of bowel contents the absorption of toxic material from the bowel and the rapid dehydration of the tissues are of great importance. The toxic substances may be bacteria or the products of imperfect metabolism of proteins. Imperfect metabolism of proteins is due to obstruction of lymphatics.

In infants intussusception is the most common type of obstruction. In adults the most usual cause of obstruction of the intestine is a fibrous band, internal hernia, Meckel's diverticulum, volvulus, impaction of feces, or sudden blockage of a cancerous or tuberculous cancer or a tumor pressing outside the bowel.

Paralytic ileus caused by too much handling of the bowel during an operation or by the development of peritonitis is a grave type of obstruction.

With some exceptions the symptoms of intestinal obstruction occur with great rapidity. The condition causes severe pain and symptoms of shock. A period of comfort may intervene followed by severe colic.

pain in the abdomen and the onset of vomiting. The higher the obstruction in the intestinal tract the more intense the pain and the earlier and more persistent the vomiting. After the lower bowel is cleaned by enemata the absolute obstruction is a very prominent feature. Distention of the abdomen is most marked in low obstruction.

With the onset of bacterial invasion of the bowel wall perforation of the bowel occurs. This is followed by peritonitis and gangrene. At this stage the symptoms of toxemia are added to those of obstruction. The clinical picture is characterized by a drawn appearance of the face, a rapid thready pulse and a subnormal temperature, steady vomiting, sweating and coldness of the skin.

A low mortality depends upon early diagnosis and early operation. In preparation for operation the stomach should be washed to prevent aspiration and the body fluid should be replenished. The abdomen is entered through a right pararectus incision and the cause of obstruction dealt with according to the indications. In desperate cases an enterotomy should be made above the obstruction and the removal of the cause of the obstruction delayed until the patient's condition has improved.

I FOW RD BIRKOW M.D.

Stetten DeW. Enterostomy Seen Years  
After Gastroenterostomy 1 3 5 7 9

The author reports the case of a 53-year-old woman with a history of gastric disturbances dating from her first pregnancy twenty-eight years ago. A ventral suspension and appendectomy were performed in 1903. In 1919 a posterior gastroenterostomy was done presumably for a cicatricial benign stenosis. After the second operation the patient slowly gained weight. Except for occasional attacks of indigestion and vomiting she remained well until January 3, 1924 when she had a very severe attack of acute pain in the upper part of the abdomen. This was associated with vomiting, jaundice and dark discoloration of the urine. The attack lasted ten days but the patient was fairly well except for a sense of pressure in the upper abdomen after eating. For ten days she had had frequent attacks of pain in the right hypochondriac region radiating to the back.

Physical examination on showed her to be a thin jaundiced woman with sensitivity in the right hypochondrium. Her temperature was normal and the leukocyte count was 17,800 with 90 per cent polymorphonuclears. X-ray examinations suggested a pathological condition of the gall bladder with calculi.

At operation a distended purplish gall bladder containing twenty stones and a calculus impacted in the cystic duct were removed. Exploration revealed a small stomach and a patent unlinked pyloric gastroenterostomy near the greater curvature. Adhesions of the mesocolon around the anastomosis were partially freed in order to obtain a better view of the anastomosis.

On the evening of the sixth day after the operation the patient began to vomit biliary fluid. The vomiting continued in spite of frequent lavage. At reoperation two weeks after the cholecystectomy visible gastric peristalsis was first seen. The abdomen was opened through a midline incision and the stomach found to fill the entire upper two-thirds of the abdomen. The stomach was emptied by a longitudinal gastrostomy in the prepyloric region. The shrunken infiltrated transverse mesocolon was found plastered to the gastroenterostomy by dense adhesions at a point lower down than at the time of the first operation. The afferent and efferent loops of bowel of the anastomosis emerged parallel underneath the edge of the transverse mesocolon. The afferent loop was somewhat dilated and friable and contained thin biliary fluid. The efferent loop was smaller but not collapsed. A lateral anastomosis was done between these two loops as the gastroenterostomy admitted only the tip of a finger and the efferent loop was definitely angulated.

The patient made a very uneventful recovery and at the present time is entirely free from gastric symptoms and weighs 5 lbs. more than her greatest weight during the past twenty-eight years.

In conclusion the author states that he reports this case to illustrate the menace of a gastroenterostomy in improperly selected cases.

K. R. H. TANNENBAUM M.D.

Schroedl P. A Case of Zuckergussdarm (Ueber ein Fall von Zuckergussdarm) Med. Klin. Wochenschr. 1913, 48:2

The word Zuckergussdarm, or sugar-coated intestine, has been coined by the author for a condition of the intestine analogous to Zuckergussleber, the chronic perinephritis or so-called tick's hepatic cirrhosis, in which the liver is covered with a thick white fibrinous covering.

The case reported was that of an 18-year-old girl with a prominent tumor the size of the palm of the hand in the lower part of the abdomen on the right side. This tumor was soft putty-like and elastic in consistency and insensitive to pressure. Percussion produced a hollow note. There were no visible intestinal contractions. On auscultation a loud humming or hissing sound was heard. The roentgen examination showed after four hours only a small amount of the contrast material still remaining in the stomach. All of the rest was found in a loop of the small intestine extending in a wide curve from the anterior superior spine of the ilium on the right side to the umbilicus. The loop had a diameter of three fingerbreadths. The contrast material could be forced by manipulation into the cæcum.

At laparotomy the parietal peritoneum was unaltered. Some ascites was present. The tumor was found to be made up of the entire small intestine from the pylorus to the duodenojejunal junction and the cæcum and was as thick as a man's arm. It was covered with a thick white layer. The thickness increased from

above d v n w a r l Its surface was sm oth and there v e r n o a l h s o n s t o the surroun ing ab j m inal organs The c l o n a free only th append t a p e a r e l t o be chronically inflamed

In an attempt to shell the inte time out fr i t s c y e r i n g i t v a s f u n d t h a t t h e i n l i v i l u a l i n t t i l l b o y s v r e f l e d u p o n t h e m e s i n t h e l o n g i t u d i n a l d i r e c t i o n W h e n t h a t t e m p t a t s h u l l i n g o u t w a s c o n t i n u e l u p a n d i n t h e d i r e c t i o n o f t h e l o o l e n u m i t v a s s e e n t h a t t h e c o v e r i n c o u l d n o t b l o o e n d w i t h o u t i n j u r i n g t h e s e r o s a T h e c e r i n w a s t h e r e f o r s i m p l y s l i t i n t h e l o n g i t u d i n a l d i r e c t i o n w h e r u p o n t h e i n t e t i m e t u r s t f o r t h a n d u n f l e e l T l p e r a t i o n v a s c o m p l e t l y r e m o a l o f t h e p e n v

C n a l o e n c e w a s u n v e n t f u l T h e p o s t p e r a t i v e t r e a t m e n t c o n s i s t e d i n t h e r m a n i m e u r s t o s t i m u l a t e p e r i s t a l t i c s E n r g e a m o u n t s o f f o o d w i t h a h i g h r s l u e w e r e g i v n T h e p a t i e n t s g a i n e d 8 l b s a n d i n o w f r e e f r o m s y m p t o m s

W i t h r e g a r d t o t h e e t i o l o g y o f t h e c o n d i t i o n t h e a u t h o r t a t t h a t t h e c h r o n i c a p p e n d i c i t i s n l a p r e v i u s s e p a r a t m a y h a v e b e n r e p o n s i b l

B w (I)

Summe s J F The Treatment of Annul r C a n g e r n e o f t h e S m a l l B e l b y I n v a g i n a t i o n V e r s u s R e s e c t i o n S g C y c & O t 1 9 2 7 1 3 4

I t i s g e n e r a l l y a g r e e d t h a t i n a c a s e o f g a n g r e n o u s i n t e s t i n e e i t h e r t h e g a n g r e n o u b o l m u s t b e r e s e c t e d o r a n a r t i f i c i a n u m u t e f o r m e d I n f a v o r a l c a s e s r e c e t i o n i s t h e p r o c e d u r e o f c h o i c e I n t h e o t h e r s t h e e t a l l i m n t o f a n a r t i f i c i a l a u s i s n e c e s s a r y t o s u v i l i f a n d t a l a t e r l i t e r a t u r e c o n t i n u i t y o f t h e i n t e s t i n l t r a t m a y b e r e s e c t b e l

W h e n t h e g a n g r e e i s l i m i t e d a n n u l a r i n t y p e t h e c e r i m h m r e s e c t t r e a t e d b y g n a t i n f t h e g a n g e n u b o l w e l t h a n b y r e s e c t i o n T h e f o r m a t i o n o f a n a t h i a l a n u s I n v a g i n a t i o n i s a n i n t e l l e g e e n t l y i n t h e l a n g u a g e u s e d i n h e h t h e s u c c e s s o f a r e s e c t i o n m a y b e d o u b t f u l a n d t h e f o r m a t i o n o f a n a r t i f i c i a l a u s i s t h e o n l y a l t e r n a t i v e I t i s a p p l i c a b l e a l o n t h e t r e a t m e n t o f w o u n d s I t h e b o w l i n w h i c h r e j e c t s t h e s u t u r e m i g h t s o l i m i t t h e i n t e s t i n f l u m n a t c a s e r i u s s t r u c t u r e r k i n g

R e s e c t i o n s o f a g a n g r e n o u b o l v e l a r e d u g r a s b e n g i t e n f l o e l b y p e r i t o n i t i s T h e f o r m a t i o n o f a n a r t i f i c i a l a n u s i s f e r e p e c i a l l y l e n i t i s l i n e u n d e r l e c l a n t h e i s b u t t h e p r o c e d u r e a l s o m a y b e a s s i s t e d w i t h s e r o u s c o m p l i c a t i o n s i t s m o r t l i l y i s e t i m a t e d b y m a n y a u t h o r i t a s h i g h a s 7 0 t o 8 0 p e r c e n t

T h e g e n e r a t i o n o f g a n g r e n o u l n e l i t r a i n d i c a t e d w h e n t h e l o o p o f g a n g e n l i t i s l a n g e t h a n 1 0 m a n d h e n t h b e l t h i k a n d r e l m a t o u s i m m l t e l y a b o v e t h e g a n g r e n e r y m u l t e n t r a c t e d t e l o s t T h e t e c h n i q u e i a f f l o s

F o u r e q u i l i t a n t s e a c u l a m a t t r e s s a l l s u t r s a e p s c i a r o u n d t h e t r u m f e n t h t h b o v e l p a r a l l e l t o t h l o n g a x i s t h e e e l l e t e i n g

1 2 c m b l t h e g a n g r e n o u s r i n g a n d t h e s a m e l a n e a l v e t i t T h e g a n g r e n o u b o v e l s t h e n v e r y e n t l y i n v a g i n a t e d a n d t h e s u t u r e s a r e s e d i l l e s u t u r h e a r e i n f e r l i y a c i r c u l a r s e r o m u l r l k s t i t c h p r o d a l l t h e h i g h e r u p s o a s t o l u r y t h e m a t t r e u t u r s I t i s a l a y b e s t t o m a k e t h e i n a g n a t i o n l a n a l

I f t h e g u t b e l o w t h e g a n g r e n e i s t o s m a l l t o p r m i t a n i n a t i o n o f t h e a l e m a t i s t h i k e n e d p o r t i o n a b o v e t h e g a n g r e n a n i n v a g i n a t i o n m a y s e m t m e s t m a d e u p v a r i a n l i n g p r i s s u t u r e l t o h i l l i t I l l e a u t h o r u s i t h i t e c h n i q u e i n e a c a s e T h e i n t e l l e l u t l e a t h a s h i e t o t h e f a t t a t t h e o p e r a t i o n a s p e r f o r m e d t a l t e

T l g a n g r e n o u s i n t u u c e p t i n w i l l s l o u g h o f f i n t a s o t h e e l v a n d i f t h e i n v a g i n a t i o n m a l e l y n a r l t h e n a t u r a l c u r r e n t o f t h e i n t e s t i n a l f l o w w i l l b e r e e s t a b l i s h e d W h e n t h e e i s a q u e s t i o n a s t o t h e v i t a l i t y o f t h e g u t t h e i n v o l v e d p o r t i o n s h o u l d b e c r u h i l d w i t h a n a n g t h e t e a r l y l a t h l e n g t h t h u s l e t r m i n e d p o s i t i v e l y a n d t h e c r u l e p e r t i n i n a g a d e f a n l s u t u r e l I f t h g a n g r e n i n v l y m o r e t h a n 5 c m t h e m o s t e r y m t e f r e e d f r m t h e b o l b e l r e t e l t h e i n g n a t i o n a t t e m p t e d i n t h e n c e s a s l u l l b e r e c t e d

C a s e s u n l i k e f r t h i t e c h n i q u e a r e n e e m m o n C o o d j u l i m n t i s r e q u i r l i n t h e r e l e c t i o n C a s e J C L R M D

Maclein N J Duoden I D c t i c l i t i s 4 S t 9 7 1 3

T h e d i a g n o s i s o f l u o l e n a l i t r e c l i t i s i s m a d e b y t h e e l i m i n a t i o n o f t h e g a s t r i c a n d t h e t r a n s t r a s t r i c l e m u s i n c h r o n i c l o m a n i a l i t u r b i n e a l l y b y t h e u s e o f t h e r a y T h e r o e n t g e n o m t h o u l d l c a l i z e t h e l e s s a n d a l l a s m a k e t h e h g n o s i s a s i t a l l a t t h e u e n t k n o w t h e l o t h o t h e l e s n i n l a n c e T h e a u t h o r r e p o r t s t w e n c e s s w h i c h e r e d i a g n o s e d b y r a y e x a m i n a t i o n N o n e w a s l i g n f i l m a l l y

T h e o p e r a t i v e t e c h n i q u e d e p e n s u p o n t h e l o c a t i o n o f t h e l e D u e r i t u m m a y b e c l a s s i f i e d a c c o r d i n g t o t h e l e s i o n a s (1) t h e s e o n t h e a n t e r i o r p e r i t o n e a l e d r i c e o f t h e d u o d e u m (2) t h o s e e m b e d d e d i n t h e p a n c r e a s (3) t h o s e b e h i n d t h e p a n c r e a s o r i n t h e t r o p h e n t i c a l p a c e

R e m o a l o f l i v e r t u c u l o f t h e f i r s t t y p e i v e r y s i m p l e I t i s d o n b y r e c t t h e o p e n i n g i n t h e l u o d e n u m t h e n b i n g c l o s i n a t r a n v e r e m a n n e r A l i v e r t i c l e m b h n l t h e p a n c r e a s i n t h e t r o p e r t i n l c e l l a r t i t u e r e q u i r e s m o b i l i z a t i o n o f t h e l o o d u m a n d i f t h e h d f t h e p a n c r e a s f o r i t s r e m l T h e c l i n i c a l h i s t o r y l a b o r a t o r y f i n d i n g s a n d p e r t e c h n i q u e s f u r c a s a r e g e n i n d e t l T h e p a t i e n t s v e r e c o m p l e t e l y r l e d o f t h e i r s y n p t o m A t t l e R H o n M D

Suthe land C G D o d i c a l U l c e r A C o m p a r i s o n o f t h e R o e n t g e n o c l e i c a n d I l l s t l o g i c a l F i n d i n g A t t l e

A c o m p a r a t i v e s t u d y i n a m a l e o f e x c i s e d d u d e n a l u l c e r a n d t h e d e f e c t i o n t h e y h i c u s e d i n



verse colon was located above the level of the p. om. ontorium. n. 45 per cent of the males and in only 12 per cent of the females. The greater curvature of the stomach was found usually to reach one vertebra lower in females than in males.

Perfect fusion, non fusion and imperfect or irregular fusion of the layers of the greater omentum may be judged in the living from the relative position of the transverse colon to the stomach as seen during roentgenoscopic examination and found by palpation and on roentgenograms. A perfect fusion was inferred in 43 per cent, non fusion that is absence of the so called gastrocolic ligament in about 33 per cent, imperfect fusion in about 15 per cent and an irregular fusion in 6 per cent. In the remaining a per cent of the cases the greater curvature of the stomach was seen below the transverse colon. Adhesions between the ascending and the transverse colon were inferred in 56 per cent and adhesions between the transverse and descending colon in about 42 per cent of the 132 cases in which the splenic flexure was properly outlined.

ANDREW HARTUNG, M.D.

Gordon Watson, Sir C. and D. Kes C. Intramural Abscess of the Colon Simulating Carcinoma and Second y to Adenoma. P. 2. R. y. S. C. M. d. Lo. d. 97 x. 55.

The author reports a case of acute appendicitis in which he found at operation in addition to an inflamed appendix a movable tumor of the transverse colon. He performed a lateral anastomosis of the proximal and distal ends of the transverse colon and two weeks later removed the tumor.

The pathological report on the tumor as given by Dukes described a growth encroaching upon the lumen of the bowel with no ulceration of the mucous membrane. The base of the tumor supported a pedunculated polyp. The center of the mass contained pus and fecal concretions and a narrow track communicated from the base to the abscess cavity. The abscess cavity was attributed to chronic inflammation about the neck of the polyp. The abscess in the body of the tumor was caused by infection from the bowel. If operation had not revealed the presence of the tumor, rupture of the abscess cavity would probably have taken place.

WILLIAM J. FRY, M.D.

Rowlands, R. P. Carcinoma of the Colon. B. 1. M. J. 9. 95.

The results of primary operation for carcinoma of the colon are good, outstandingly so, with those of primary operation for cancer of the stomach or rectum. The condition generally kills by causing intestinal obstruction and if such obstruction is prevented by early removal of the growth the chance of cure is favorable. The disease usually originates as an ulcer or papilloma. It spreads slowly in the wall of the bowel and takes a long time to infect the lymphatic glands or to invade the liver through the portal vein.

The symptoms and signs are insidious in their onset and generally develop at about middle life. They consist of dyspepsia of the intestinal type characterized by alternating diarrhoea and constipation, frequent desire for defecation, small stool containing perhaps blood and slime and at times occult blood distention of the abdomen, colic and mild peristalsis. Frequently a tumor can be felt on luminal examination of the loin or pelvis but it is difficult to palpate a tumor of the splenic flexure. X-ray examination is of aid. At times only exploratory laparotomy will establish the diagnosis. This should be done early if there is grave doubt.

The conditions that must be differentiated from carcinoma of the colon are ulcerative colitis, dysentery, sprue, diverticuli of the pelvic colon, papilloma and adenoma of the colon, appendicitis with chronic suppuration, tuberculosis of the caecum, impaction of faeces with irritation of diarrhoea in old persons and abdominal tumor. The diagnosis is not complete until it has been ascertained whether the growth is removable.

In the treatment the ideal is early removal of the tumor. Removal of the growth and end to end union is best but in a case of tumor of the caecum, ascending colon and hepatic flexure for which the lower 6 in. of the ileum, the caecum and the right colon must be removed to effect a cure it is better to make an end to side union between the ileum and transverse colon. In order to drain the colon freely and prevent gaseous distention and undue tension upon the stitches it is sometimes necessary to resort to caecostomy, an ileoprsacrectomy into the colon through the anastomosis. Operation may be successful in removing or shortening the growth. In most cases of acute obstruction the cause and site are not clear, therefore an attempt to perform a blind caecostomy may be disastrous. The colon may be obstructed by bands, volvulus or foreign bodies.

The liver should be examined for secondary growths and the site and cause of the obstruction discovered. If the cause is a growth the removability of the tumor must be ascertained. If there are no secondary growths and the primary carcinoma is removable, a colostomy is indicated but if there is no hope of resection either a short circuit or a colostomy should be done since caecostomy as a permanent means of draining the bowel is intolerable on account of the frequent and irritating fluid stools.

Colostomy is better than caecostomy when the growth is irremovable and short circuiting is impracticable and when the obstruction is low down in the colon.

Short circuiting is successful when the growth is removable. It is valuable also in some cases in which the obstruction is not too severe and the patient is fairly good constitutionally.

Primary resection with reconnection of the natural channel is very dangerous unless treated with acute and complete obstruction of the colon, the mortality being over 50 per cent. The danger lies in the union







**Chifoliau** A Seous Cyst in the Suspensory Ligament of the Liver (Ky te ér d le l ame t s p du l i i) *Bll t t S nt de cl 9 6 11 t 97*

The author reports a case of cystic tumor of the right hypochondrium which was thought to be a hydatid cyst of the inferior surface of the liver or a mesenteric cyst. At operation a pedunculated cyst the size of an ostrich egg was found between the leaves of the suspensory ligament of the liver. This was removed unopened. The patient made a complete recovery. *I Fo M ZIMMERMAN M D*

**Gratam E A** The Present Status of Cholecystography and Remarks on the Mechanism of Emptying of the Gall Bladder *S g G n e C Ol t 9 7 11 t 153*

Cholecystography provides a means of investigating the only functions of the gall bladder which are known namely its ability to concentrate its contents as revealed by an increasing density of the shadow and its ability to store bile as shown by changes in the size of the shadow. It is a functional test also of course evidence of even early and comparatively mild inflammatory disturbances. It has been of value in the diagnosis of cholestasis and has been the means of recognizing many more cases of calculus than has been possible by the ordinary roentgen examination. It will reveal pericholecystitis and pericholecystic adhesions show the relation to the gall bladder of shadows seen in an ordinary film and demonstrate various anomalies and abnormalities such as diverticula double gall bladder etc.

Of 126 cases examined by cholecystography by the method which is so simple the gall bladder was removed and subjected to microscopic examination 114. In 43 (35 per cent) of the 114 cases the roentgen diagnosis was confirmed. It is realized that the percentage of diagnostic efficiency for the method may not be strictly accurate based as it is only on cases in which the direct microscopic confirmation is possible but in some of the cases reexamination normal and therefore not subjected to operation some of the cases of the gall bladder may have been present. However in the few cases in which a formal per operation roentgen examination has been made the hamper examination of the gall bladder disagreed not at all. The latter graph his findings have led him to believe that approximately the same percentage of error exists in both for the normal as for the pathological case.

The hindering factor in cholecystography as reported in the literature is generally in the reliable. Only the following are presented which were criticized by the author.

Of 446 patients in the literature an examination of the author in his gall bladder diagnosis and a pathologic cholecystography examination at per operation roentgen examination was not made in only ten. The error in the diagnosis made by cholecystography was 10 per cent in 97.8 per cent. It is very surprising

that this high figure only 2 per cent short of perfection should have been reached in this early period of development of the method and by many different observers. It is probable that as experience with the procedure grows it will increase still further. In fact several of the surgeons cited in the table are of the opinion that in some of the cases in which they considered the gall bladder normal contrary to the roentgen diagnosis there is considerable doubt as to the correctness of this opinion.

The criteria of interpretation of a normal and an abnormal gall bladder respectively have been given so frequently in other publications that they are not mentioned here except for the statement that failure to obtain any shadow after the use of the intravenous method is the most certain indication of disease of the gall bladder. The interpretation is most difficult in those cases in which there seem to be variations from the normal in faintness of the shadow and delay of its disappearance. It is in this type of case that Graham has had his only errors of diagnosis.

Graham prefers the intravenous method and adheres rather closely to the technique which he has described from time to time in various publications. It will be seen from the table that other workers who have used the intravenous method have in general obtained a higher percentage of correct results than those who have used the oral method. The most serious objection to the administration of any substance for cholecystography by mouth is the uncertainty as to whether a sufficient amount has been absorbed to reveal the gall bladder in a case in which there has been a failure to obtain a shadow.

The objection to the intravenous method is the fear of a general toxic reaction or a thrombophlebitis at the site of the injection.

The fear of reactions invites a discussion of the toxic effects of these substances which are now known to be capable of making the gall bladder visible. An ideal substance for cholecystography would be one without toxic effects. Such a substance has not been found. Of forty three substances with which the author has experimented twelve render the gall bladder visible but all of the eleven have some toxic property. Up to the present time the one which seems most satisfactory from the standpoint of toxicity is phenoltetraiodophthalein which differs from its isomeric compound tetraiodophenolphthalein in the position of the iodine atoms in the molecule. This substance is slightly less toxic than the others has the advantage of being much more expensive. On the other hand it can be used for simultaneous cholecystography and tests of hepatic function since it gives a strong purple color in alkalimetric serum. Graham has been using it for cholecystography almost exclusively during the last six months. His experience has shown a marked decline in toxic reactions of ill kinds. This decline has been noted particularly since he has used phenoltetraiodophthalein.



strong evidence of intrinsic contractions of the wall of the gall bladder. Additional evidence obtained by different methods is in favor of the occurrence of contractions has been presented in a recent article by Higgins and Mann and in two reports by McMaster and Flman.

In the author's opinion the important question is not whether contractions occur but whether they are able to empty the gall bladder. From other experiments carried on by his associates and described in this article it seems to him evident that intrinsic contractions of the wall of the gall bladder aside from the factor of elastic recoil are not sufficient to empty the organ. He therefore concludes that the gall bladder is emptied of its contents through the cystic duct by the washing out of its contents by bile from the liver by the elasticity or contractile mechanism of its walls and by variations of intra-abdominal pressure. In the light of the new evidence he believes we have not a signed sufficient importance to the factor of intrinsic contractions of the muscle and that this factor should be added to the physical forces mentioned as responsible for the emptying of the organ. He is unwilling to ascribe an exclusive rôle to muscular contractions.

FRED C. POB TSHIR, M.D.

Moore S. Further Observation on Cholecystography. *Med J - K* 97 26

The normal visualized gall bladder may be found located anywhere here let even a point opposite the ninth rib posteriorly and a point below the level of the pelvic brim and between the abdominal parietes and the midline. During the period of examination it may shift its position materially. Visualization depends upon the angle of the rays therefore the cholecystogram shows greater variations in form size and position than can be found on the operating table or in the autopsy room. No pathological significance can be ascribed to these variations.

Assuming that liver function is relatively normal and the biliary system patent non-visualization of the gall bladder by cholecystography is conclusive evidence that the concentrating function of the gall bladder is absent or decreased so that the quantity of fluid removed from the bile is not sufficient to render the organ visible. Faint visualization of the gall bladder with prompt disappearance of the shadow parallel to that in normal subjects indicates impairment of concentrating function. This is in itself doubtful when the gall bladder is not visualized until later than normal.

Granhall's workers have shown conclusively that the result of hepatic insufficiency on concentrating function of the gall bladder disappears very early. The finding reported by the investigators and of examination of the gall bladder indicate that when inflammation has been relieved the function of the gall bladder will not be restored and that a gall bladder which has lost its function is just as fruitful a source of trouble as a fibrous appendix or a de-

talized tooth since it acts as a focus of infection and re-infection.

WILLIAM E. SHACKLETON, M.D.

Chiray M. and Pavel I. A Pathological Clinical and Therapeutic Study of the Strawberry Gall Bladder (*La vésicule fraie étude pathogénique clinique et thérapeutique*). *Ann. d'anat. path.* 1916 1 769

The strawberry gall bladder shows scattered over its mucosa numerous projecting yellowish white masses which usually occupy the summits of the villi and rugae.

This lesion has been observed for some time but has not always received the attention it merits. Reference to the presence of deposits of cholesterol in the mucosa of the gall bladder was made by Aschoff, Roussy, Laroche and Flaudin and colored illustrations of the lesion are to be found in certain textbooks but although the condition was established as a morbid entity by MacCarty in 1910 it has attracted general interest only since a statistical study of it was reported by MacCarty in 1919 and other investigators advanced the theory that it is the initial lesion of gall stone formation. According to MacCarty its frequency is 18 per cent.

Microscopic examination shows beneath the epithelium masses of large cells (40 to 50 micra in diameter) which usually occupy the free extremities of the rugae. These cells contain a large amount of reticulated protoplasm and a relatively small vesicular nucleus. Special stains show the reticulated cytoplasm to be densely infiltrated with lipoids. The masses of cells may occur with less frequency in the deeper layers of the mucosa. Lipoidal deposits in the epithelium which is usually intact are inconstant.

There are minor degrees of this condition which cannot be detected macroscopically. Beneath the epithelium are found a variable number of endothelial cells charged with fat and distributed along the lymphatics.

Certain strawberry gall bladders typical in their gross appearance show a very different disposition microscopically in that the masses of lipoid instead of being lodged in cells are free in the interstitial tissue. This type is quite rare.

All of the forms of strawberry gall bladder described are associated with evidences of chronic inflammation.

With regard to the origin of the pseudoxanthomatous cells the author reports that Amstschlow has recently produced these cells experimentally by provoking a suppurative or nonsuppurative inflammation of the gall bladder and feeding a diet rich in cholesterol. The inflammation causes the appearance of macrophages containing neutral fats which in the presence of an excess of cholesterol become transformed into the pseudo xanthomatous cell.

Clinically the rôle of hypercholesterinemia remains to be determined but the importance of infection has been amply demonstrated.

Lect G and Lec ne P Traumatic Rupture  
of the Biliary Ducts Localized Choleperito-  
neum Intervention Recovery (Rupt rei m  
t que d e l l re ch léj éritoi lo l sé  
her e l guér ) B l l st fm So i de  
1926 1 03)

This article reports the case of a 15 year old boy who sustained a skull fracture fractures of the humerus and femur and multiple lacerations in an industrial accident. Several days after the injury crises of abdominal pain associated with vomiting began. The abdomen was tender especially over the right side but not rigid. Appendicitis or cholecystitis was suspected. A few days later there appeared in the epigastrium extending over to the right side a tumor which as dull on percussion cystic and slightly tender on pressure and which increased gradually in size.

Laparotomy performed twenty five days after the injury disclosed a cystic accumulation in the upper abdomen the fluid of which was bile colored. Following evacuation of the cyst the cavity was drained and the abdomen closed. Chemical examination of the fluid produced it to be bile. Uneventful recovery resulted.

In the recognized all enclosed choleperitoneum exploration to determine the exact location of the lesion is not necessary. Simple drainage of the collection is sufficient to insure recovery. Experimental studies have shown that in natural dislocations of the gall bladder external biliary fistulas tend to heal readily provided there is no intracanalicular obstruction. Sugar has demonstrated the same tendency in man. Following rupture of the tracts however, which lead to a biliary fistula which may persist if no drainage and drainage of the accumulation is done. In such cases immediate reconstruction of the duct is indicated. This best accomplished by carefully suturing over a rubber tube in the duct. If this is not done a subsequent resection will be necessary and will be rendered more difficult by the formation of cicatricial adhesions. L. O. M. LAMM M. D.

Lot in R The Relation of Gall Stones to Cancer of the Extrahepatic Biliary Passages and a Contribution on the Migration of Gall Stones and Hydrophobic Biliary Passages (U. b. r. die B. h. n. um K. e. d. e. t. hep. t. sch. n. Gal. l. n. ge. n. h. B. e. t. z. Lehre. d. C. l. l. t. u. g. u. d. d. m. H. d. p. d. C. l. l. g. ) A. H. f. K. Ch. q. o. c. v.

In 943 autopsies performed in the period from 1910 to 1919 undoubtedly primary carcinoma of the biliary passages found in twenty seven (about 1 per cent). Among the latter there were nineteen carcinoma of the gall bladder and three of the cystic duct. The average time between the appearance of the first symptoms and death was about six months. In three fourths of the cases there were no premonitory symptoms such as colic or pain yet in half of these gall stones were also found later.

The ratio of carcinoma of the gall bladder and cystic duct in males and females was 1. In other parts of the bile passages there was no difference in the incidence of carcinoma in the two sexes this being in accord with Kehr's findings. Squamous cell epithelioma was present in four cases. The combination of pure cholesterol stones with carcinoma described by Aschoff did not occur this is a rarity. Of the cases of stone formation only 7 per cent (eighteen of 25) were associated with carcinoma a finding which indicates that gall stones are not of great importance in the development of cancer.

Carcinoma without stone formation was found more frequently in males than in females whereas carcinoma with stone formation was found more commonly in females than males. Carcinoma and stone formation are independent of each other. Their frequent association is due to a common cause a change in the bile metabolic or infectious with consequent irritation of the mucous membrane.

The cases reviewed prove anew that faceted cholesterol pigment calcium stones practically never occur primarily in the bile ducts. These are characteristic of the gall bladder whereas stones primary in the ducts have the character of the earthy or so called pigment stones.

The cases confirm Aschoff's conception of the gall bladder as a pressure equalizing and bile concentrating organ. Hydrops occurs only when its function fails.

In conclusion the author gives some statistics on the cases of gall stones. In about 73 per cent of these there had been no clinical difficulties. Migration of the stones had occurred in 11.2 per cent of the female subjects and 22 per cent of the male subjects. In the women the highest incidence of gall stones was between the fiftieth and sixtieth years of age and in the men between the sixtieth and seventieth years (autopsy cases). TOELAEV (L).

Kaufmann M. An Experimental Study of the Lymphatic Theory of Pancreatitis. J. g. G. c. v. Ob. l. o. 7. h. 5.

In describing the mechanism of pancreatic infection by the lymphatic route Kaufmann quotes Deaver as saying: "The infection spread from an inflamed gall bladder to the cystic lymph node then by a periductal lymphangitis through the node along the common duct to those at the head and margin of the pancreas and thence to the regional lymphatic distribution to the head of this organ."

In another article he says: "The lymphatics of the head of the pancreas which arise in the neighborhood of the bile duct are intimately connected with the lymphatics of the lower end of the bile duct and these in turn are intimately associated with the lymphatic ducts of the gall bladder. In infection of the regional lymph nodes this can very easily cause a damming back of the lymph and cause aseptic inflammation of the interstitial pancreatic tissue with subsequent organization and cicatrization."

The fact that the strawberry gall bladder is found in only one of every three or four cases of chronic cholecystitis gives rise to speculation regarding the type of infection which favors it. In the authors' opinion the anatomical type of the lesion is of greater importance than the invading organism. The lesion is an acute inflammation with diffuse leucocytic infiltration which acts by interfering with the lymphatic drainage and hence with the removal of the lipoids absorbed by the gall bladder mucosa. With subsidence of the inflammation the lymphostasis may be maintained by mechanical factors. The authors believe that this process is reversible up to the point at which the fat-laden cells lose their vitality.

The strawberry gall bladder gives rise to symptoms which usually lead to operation. While the authors believe that the lesion may be cured by appropriate medical treatment in a considerable percentage of cases the exact diagnosis of the lesion which this treatment would demand is at present unattainable. Constat believing the lesion to be a precursor of lithiasis advises cholecystectomy. The authors do not accept the theory that cholelithiasis is a unilateral sequel. Lachene and Moulonnet find that cholecystectomy rarely effects the radical cure expected the attacks of fever, pain and digestive disturbance continuing after the operation. Their best results were obtained with cholecystomy. The authors believe this is the rational treatment when the gall bladder has conformed its suppleness as it breaks the vicious circle which has been established.

The very favorable effect of cholecystostomy indicates the reversibility of the mechanism which produced the lesion. When the infection has completely subsided curettage seems a legitimate procedure.

The article contains several colored plates.

ALBERT F. DE GOUT MID

#### Mentzer S H The Pathogenesis of Biliary Calculi I & S G 97 14

Mentzer discusses the various theories of the origin of gall stones. He adduces evidence against the contention that infection is the cause of all gall stones. Pure cholesterol stones and cholesterin-rich stones are often found in normal looking thin-walled gall bladders. The presence of bile pigment in the stone is indicative of inflammatory changes in the wall the always accompanying dark common stones. The author therefore suggests that the deposition of bilirubin has some relation to inflammation but that the precipitation of cholesterol has none. In 10 per cent of his cases of gall stones the stone was of the cholesterol type and there were gross deposits of cholesterol in the wall of the gall bladder.

Mentzer cites the opinions of others concerning the relation between cholesterin, lipopigment and the formation of calculi and his own work demonstrating the similarity of the organic structure of

calculi to that of polyps of the gall bladder. He believes it probable that portions of the mucous membrane laden with cholesterol furnish nuclei for precipitation.

In all of several thousand gall stones which Mentzer examined a nucleus of some sort was found. He suggests that a nucleus may be a mechanical necessity but admits that the presence of a foreign body will not alone cause the formation of a stone. The nucleus is usually a mass of bile pigment (bile thrombus of Nauyn).

In measurements of the cholesterol content of the blood in 200 cases of gall bladder disease, Mentzer found that it was higher on the average when stones were present. He cites the well-known relation of gall stones to disease of pregnancy with its tendency toward hypercholesterinemia and its relation to obesity as evidence of the influence of a disturbance of cholesterol metabolism on the formation of stones.

Mentzer's own observations have led him to support the opinions of others that the gall bladder may absorb cholesterol.

In the end the author appears to ignore his earlier conclusions in regard to the organic structure of a gall stone and suggests that obstruction to the passage of cholesterol through the gall bladder wall leads to the accumulation of this substance in the gall bladder bile. Supersaturation and turbidity of the colloidal balance then lead to the precipitation of cholesterol in bile salts.

#### Borden V G The Surgical Pathology of the Gall Bladder I & S G 97 139

The author studied the pathology of chronic cholecystitis in surgical specimens by immediate examination of the gross specimen and frozen section. The condition is usually not the result of an acute process but begins as a mild infection and inflammation of the mucosa and submucosa and progresses deeper into the wall of the viscus where it becomes established and glands are crypts and diverticula and between the muscle bundles. Its chronicity is favored by the anatomical and histological structure of the organ which favors stasis and obstruction.

Interruption of the outflow of bile frequently present and the direct relationship of infection to stone formation, perforation and pericholecystitis.

The muscle of the gall bladder plays an active part in the normal function of the organ and undergoes characteristic changes when the outlet of the viscus is intermittently or partially obstructed.

Stones frequently a complication of cholecystitis and usually an inevitable result of long continued infection but they may also form in the early stages of inflammation.

Cholecystitis is usually a primary infection. Cholecystectomy is a logical procedure because it removes the focus from which the attendant and complicating lesions of cholecystitis take their origin.

SURGEON K. H. MID

The author believes that splenectomy may control Gaucher's disease.

The hyaline tumor of the spleen in the secondary stage of syphilis is usually a manifestation of the general infection and not a sign of splenic syphilis—shows a tendency to recede under specific treatment. Splenectomy comes up for consideration in cases of large hyaline tumor in the tertiary stage with the syndrome of Banti's disease.

The malarial spleen should be extirpated only when there are severe tumor symptoms with a movable pleurotomy of the pedicle or rupture of the spleen.

In tuberculous of the spleen the only condition of surgical interest is the primary isolated so-called surgical tuberculous in which splenectomy is followed by good permanent results. In secondary tuberculous of the spleen splenectomy should be undertaken only when the splenic condition is responsible for the predominating symptoms.

LOEHR (Z)

### MISCELLANEOUS

#### Beje H L Transphrenic Infection Report of Ten Cases 1935 97 x 24

The diaphragm presents a striking barrier to the spread of infection from the pleural cavity. Extension through it in cases of empyema or lung abscess is remarkably infrequent. In a series of 100 cases of acute and chronic empyema treated on the surgical service of the hospital of the University of Iowa since January 1, 1913, infection passed through the diaphragm in only one instance and in this case the diaphragm was traumatized at operation.

In infections originating below and in contact with the diaphragm the process may pass upward to involve the pleural cavity or lung parenchyma. In the author's series of twenty-four cases of subphrenic abscess a transphrenic infection occurred spontaneously in eight. In another case the pleura was opened where the abscess was drained but there was no pleural infection. In a marked and sudden reaction in the pleura that pleural infection was imminent.

This is explainable on the basis of the lymphatic drainage of the diaphragm. The diaphragm is supplied with a rich network of lymph vessels, the thoracic and abdominal surfaces of the muscle penetrate it freely and drain into systems of nodes which lie on the thoracic side. Probably in most cases the extension of infection upward is purely lymphatic at the outset.

An uncomplicated case of subphrenic abscess will often be difficult to interpret and treat. The difficulty is likely to be greatly increased when the condition is complicated by an extension of the infection above the diaphragm to the pleural space or lung.

Of ten cases the subphrenic infection developed as a complication of an acute attack of appendicitis in three. In a fourth an operation had been performed for appendicitis two years before and at

autopsy an abscess was found extending from the diaphragm to the pelvis with a perforation into the cecum. Four patients probably had acute perforations of peptic ulcers and one a perinephric infection. In the tenth case the original condition was acute empyema.

Beje particularly stresses the importance in the diagnosis of a complete history and roentgen ray study. In some cases lung mapping helps. Drainage of the empyema may be sufficient but in some cases drainage of the subphrenic abscess may be necessary in addition.

Ten cases are reported in detail with the operative and autopsy findings. The author draws the following conclusions:

The diaphragm is an efficient barrier to the extension of infection from the pleura to the peritoneum.

Because of the lymphatic drainage the extension of infection from a subphrenic abscess to the pleura or lung occurs commonly.

A gross break in the diaphragm takes place in the majority of cases with a direct connection between an infraphrenic and a subphrenic involvement.

In some cases drainage of either the infraphrenic or the supraphrenic infection will lead to the cure of both but in the majority of cases drainage of each area of involvement is necessary.

JOHN J MALOEV M.D.

#### Ta e n l e r Late Results Following a Left Lumbar Contusion Subphrenic Abscess Pylephlebitis Death Nine Months After the Accident (A Case of Death of a Soldier in the Army)

In an automobile accident a man 39 years of age suffered a contusion of the left lumbar region, slight concussion of the brain and contusion of the thorax associated with small rattle at the left base and decreased breath sound. The head injury as the only one that seemed to be of any importance but as the signs of concussion soon disappeared and there was no fracture of the skull the scalp wound was sutured and the patient sent home.

After three months he went to work but soon began to have fever and chills. When the author re-examined him a month later he found a subphrenic abscess. Drainage of the abscess was followed by recovery but phlebitis of the right leg then developed and at the end of the sixth month there was an infarct of the right lung. In the eighth month pylephlebitis developed beginning in the veins of the transverse mesocolon. The pylephlebitis caused death nine months after the accident.

The case is of interest from both the surgical and the medical points of view. The subphrenic hematoma was probably due to partial rupture of the spleen. Late complications are well known in partial ruptures of the spleen and kidney but generally occur earlier. During the last year the author has had two other cases of left lumbar contusion

There are three possible explanations of the etiology of pancreatitis. The first is the conversion of the common bile duct and the duct of Wirsung into one continuous channel permitting the entrance of infected or chemically altered bile into the pancreas, this conversion being caused by the impaction of a small stone or inspissated mucus in the ampulla of Vater or by spasm of the sphincter of Oddi closing up the common entrance of the two ducts into the duodenum. The second is the possibility of the regurgitation of duodenal contents through the ampulla into the duct of Wirsung. The third is the extension of an inflammatory lesion from neighboring organs such as the gall bladder and bile ducts to the pancreas by way of the lymphatics.

Graham and Leterman claimed to have produced a pancreatic lymphangitis. They infected the liver lymphatics by injecting organisms into the portal vein, traced their route of infection from the lymphatics of the liver to the gall bladder along the common duct and to the pancreas and then demonstrated polymorphonuclear leucocytes and bacteria in the interlobular connective tissue. In a repetition of the experiments the author confirmed their findings but discovered in addition identical changes in the spleen, kidneys, heart muscle and lungs which indicated a bacteremia and accounted also for the changes in the pancreas.

The experimental work was done on cats. In four cats the right lobe of the liver was inoculated by introducing 2 or 3 drops of a beef infusion on broth culture of staphylococcus aureus under Clisson's capsule. At necropsy ten days later numerous sections throughout the pancreas failed to show inflammatory changes of any kind. The blood cultures were positive. In thirteen cats inflammatory conditions were produced in the gall bladder. At necropsy it was shown that cholecystitis was produced in the thirteen animals used and in no case was there evidence of a pancreatitis of lymphatic origin.

The theory of the lymphatic origin of pancreatitis is based on the assumption that in infection of the regional lymph nodes the infect on can easily cause a damming back of the lymph and a septic inflammation of the interstitial pancreatic tissue with subsequent organization and cicatrization. However such a damming back of lymph would require not only failure of the valvular action of these trunks but also complete inhibition of their muscular action conditions difficult to conceive.

The author concludes that there is as yet no anatomical experimental or clinical proof warranting acceptance of the theory of the lymphatic origin of pancreatitis.

RAYMOND GREEN M.D.

**Herfarth H.** Splenectomy in the Blood Diseases the So Called Splenicomegalia and the Infectious Splenic Tumor (Die Splenomegalie Blutkrankheiten und sog. Splenotumoren) *Mitt. n. d. Ch. 96* 144

Attention is called to the tendency toward conservatism in surgery of the spleen. Prolonged ob-

servation has given Herfarth the opportunity to report the results of splenectomy in diseases of the blood and infectious processes.

The literature to date on hæmolytic icterus reports 175 cases with six deaths. Hæmolytic icterus may be absolutely and promptly relieved by splenectomy even though the operation does not meet the etiological indication. The author's cases show a result lasting for seven and four years respectively. This operation is not advisable when the symptoms of the disease are mild.

With regard to pernicious anemia the Breslau Clinic supports the views of Eppinger. By splenectomy the hyperfunctioning spleen is removed from the otherwise hypofunctioning hæmatopoietic system. Of twelve patients subjected to splenectomy for pernicious anemia one survived six and a half years, one for one and a half years and one for one year without recurrence. Remissions may follow splenectomy without treatment fail.

In aplastic anemia splenectomy is contra-indicated.

In essential thrombocythemia splenectomy is indicated definitely. Up to the present time thirty-three cases have been reported in the literature. There have been no failures in the chronic form of the condition. The Breslau Clinic is able to report results lasting for periods up to six and a half years. The author is under the impression that the acute form is a disease picture of peculiar etiology. Of six patients operated upon up to the present time for the acute condition four died. According to the experience of some surgeons ligation of the splenic arteries promises good results.

Splenectomy is indicated in very obstinate cases of pseud leucæmic anemia of infants. Improvement has been noted in a few cases.

Experience with splenectomy in leukemia has been very unfavorable. Splenectomy is to be considered in this condition only when the symptoms are produced by a very large tumor. Of fifty-four patients whose cases are reported in the literature only eight survived the operation for a year.

In polycythæmia splenectomy is contra-indicated as the already existing hyperfunction of the blood destroying forces is increased by removal of the spleen.

According to the views of the Breslau Clinic thrombophlebitic tumor of the spleen should be operated upon when there are hæmorrhages threatening life. Of seventeen patients whose cases are reported in the literature only nine survived the operation. In the presence of thrombosis of the portal vein the gre test reserve is necessary.

In Hanot's hypertrophic cirrhosis of the liver splenectomy is desirable procedure to prevent the further spread of the condition.

Up to the present time the literature contains the report of five cases in which operation as performed for acute yellow atrophy of the liver. Four of the patients died. Splenectomy may offer a hope of success if the atrophy has not progressed too far.



# GYNECOLOGY

## UTERUS

**Burnam C F** The Treatment of Uterine Fibroids and Bleeding Cases with Particular Reference to Radiation Methods *New Orleans M & S J* 1921 1 2, 477

In discussing radiation treatment of uterine fibroids Burnam describes a bleeding case as one in which the abnormal uterine bleeding can not be ascribed to a demonstrable gross pathological condition. The bleeding is probably most often dependent upon ovarian or pluriglandular dysfunction or blood scraws. At the same time hyperutilization of the uterine mucosa may be present. Treatment should be general to combat the anemia and psychomotor manifestations and local in the form of radiation. Removal of local infection may be of assistance.

In the treatment of the bleeding cases by radiation some hours are used to stop menstruation temporarily and a gram and a half or a curie and a half hour treatment to produce permanent amenorrhea. The most satisfactory result is obtained with the dosage with the radium in the uterine cavity through good results may be obtained by the use of radium or X rays from the outside. With the former method it is better to give a full treatment at one sitting.

The majority now favor radium over surgery in the treatment of myofibroids. Myomectomy should seldom be indicated. Hysterectomy may be advisable in good hands but not often. The mortality of hysterectomy is low but is about the same as that of radical hysterectomy in the same type of case. It is possible for a patient to become pregnant and give birth to a full term child after the cure of a fibroid by radium but in general it is necessary to give a full treatment in order to secure a complete result. The symptoms of a fibroid may be relieved nearly as well in younger women than in the older menopause.

Before treatment is instituted gynecologists should be substantiated by ureteric and examination under anesthesia. The uterine and the election of the patient truly for the treatment will minimize the blood.

In principle the effect of radium in hemorrhage is to kill the radium. Approximately 80 percent of myofibroids are 50 percent of the large ones. The uterine treatment of the fibroid is not indicated in 10 percent of the cases.

In the treatment of the degenerative changes in the uterus the best treatment is hysterectomy. If infection is present it is better to treat the whole of the minimal wall. If we are in doubt as to the uterine application of radium

is superior to its external use and is superior to treatment by X rays or surgery.

COODRICH C SCHAEFFLER M D

**Clark J G and Ferguson L K** Carcinoma of the Cervix Uteri as Treated in the Gynecological Department of the University Hospital (Ser 311 1919 1923) *Am J Obst & Gyn* 19 7 2 1 144

A study was made of a group of 214 cases of carcinoma of the cervix uteri treated in the Hospital of the University of Pennsylvania during the years 1919 to 1923. Of this number thirty cases were discarded because the record was incomplete or the patients could not be traced. The remaining 184 cases served as the basis for this report. Ninety-four cases were treated five or more years ago of these thirteen are living, the apparent cure being 13.8 per cent. Three years have passed since treatment in 161 cases with 27 apparent cures (16 per cent).

The first symptom in three fourths of the cases was hemorrhage in some form. Patients usually wait until bleeding and discharge become excessive or until great pain forces them to seek medical attention.

Of the patients who came for treatment within six months after the appearance of the first symptom 60 per cent were inoperable. A patient treated during the first six months has one chance in seven of a five year cure, one treated after the first six months has one chance in twenty-six for a five year cure.

Adenocarcinoma constituted 13.5 per cent of the series and epithelioma 86.5 per cent. The result of treatment were approximately the same in each type. The older the patient the better the prognosis for prolongation of life or a total cure of the disease.

In the group in which bleeding was present treatment with radium alone resulted in a five year cure in two of eleven cases (18.2 per cent). Caution and radium resulted in a five year cure in five of six cases (83.3 per cent).

In the group in which a foul discharge was present radium or the cautery plus radium gave no five year cures in eleven cases. In one case in which hysterectomy was followed by radium the patient was living after five years.

In the group in which pain was marked radium alone gave a five year cure in two of thirty-nine cases (5.1 per cent). Caution and radium resulted in a five year cure in one of five cases (20 per cent).

In the group characterized by urinary symptoms there were no five year cures in nine cases.

In all classes of cases treatment with radium alone resulted in a five year cure in sixty-eight cases

which did not seem at all serious at first but later developed serious symptoms necessitating an emergency operation on about the tenth day. On was a case of intraperitoneal hematoma around the lower pole of the kidney which had been crushed and the other a retroperitoneal hematoma from a slight rupture of the kidney. *Arder Y G M R AN MD*

**Ford F A Roentgen Ray Treatment of Abdominal and Pelvic Tuberculosis** *U S I U D*  
9 3 3

Ford reviews thirty five cases of abdominal and pelvic tuberculosis in which roentgen ray treatment was carried out. In twenty six the lesion was peritonitis with or without demonstrable primary foci in the other the infection had involved various structures. In all but one case operation had been performed previously.

The dosage and method of application of the roentgen treatment are described. The effect on menstruation was observed. In two cases temporary disturbance or interruption was followed by reformation. Reported courses of treatment usually had a more profound and permanent effect.

Definite improvement was evident in 66 per cent but the result depended very largely on low intelligence of the patient followed all available methods of treatment and governed their activities and diet. The small series reported does not show a higher percentage of cure than is obtained by other methods but because of its general tendency to promise improvement roentgen ray treatment may be considered worthy of a thorough trial in such cases.

**Muller G P and Boles R S Abdominal Manifestations of Hodgkin's Disease Report of Case** *J U I 9 1 3*

Muller and Boles report three cases illustrating the variability of symptoms and the difficulties in the differential diagnosis of the abdominal type of

Hodgkin's disease. From a study of these three cases under their observation they draw the following conclusions:

1. In Hodgkin's disease primary involvement of the abdominal viscera is exceedingly rare.

2. Little is to be gained from a consideration of the symptoms in the abdominal type of Hodgkin's disease since they are variable and may simulate those of a number of acute and chronic conditions. Symptoms referable to the gastrointestinal tract are usually present when the abdominal viscera are affected. Pruritis, diarrhea and the recurrent type of fever are suggestive of lymphatic disease and adenopathy may be present.

3. When Hodgkin's disease is suspected biopsy of an affected gland should be performed. The classical histologic picture of the disease is rare when the disease is present. In atypical forms confirmatory evidence is usually supplied by frequent blood examinations. The blood picture is fairly characteristic.

4. Hodgkin's disease of the abdominal type must be differentiated from tuberculous peritonitis, typhoid lymphosarcoma of the retroperitoneal glands and splenic megal particularly that of leukemia, splenic anemia and occasionally splenomegaly of the Gaucher type, Banti's disease and von Jaksch anemia.

5. Radical surgery may be considered when the external evidence indicates that the process is chronic and in progress; when some function is interfered with by pressure and when splenic megal persists after irradiation.

6. In the treatment of Hodgkin's disease the best results in the way of temporary amelioration have been obtained by roentgenotherapy both general and local. Such therapy should be directed primarily to the abdominal deposits.

7. The prognosis of Hodgkin's disease is apparently hopeless. *J C M M M D*

by direct transfusion. The patient was discharged from the hospital thirteen days after admission.

The microscopic diagnosis was chorio adenoma of doubtful malignancy.

On January 16, 1925, forty-six days after the expulsion of the hydatidiform mole, she had a severe chill and her temperature rose to 103 degrees F.

The patient was kept under observation in the hospital for a period of nine days. During this time the vaginal hemorrhage continued. Some clots of moderate size were expelled. An exploratory curettage was performed. Close inspection of the material disclosed some hydatid cysts but these were not numerous. The uterus was immediately removed through the abdomen but the ovaries and tubes were allowed to remain. The pathological diagnosis was malignant chorio adenoma.

After leaving the hospital the patient improved very rapidly and seemed to be quite well. On October 1, 1925, she again came under observation complaining of vague pain in the left side of the pelvis and on October 19, vaginal examination revealed a small cystic mass in the left pelvic cavity. In order to determine the true nature of the left pelvic mass an exploratory posterior vaginal incision was advised. A semifluctuating globular mass comparable in size to a small orange was outlined. The mass was not firmly adherent but it was not freely movable. In order to determine the nature of the tumor blunt-pointed scissors were carried into the mass and the blade was separated. Most alarming hemorrhage followed. Efforts to control the bleeding from below failed utterly and accordingly an abdominal incision was made. The bleeding surface was sutured and the hemorrhage itself was finally controlled by the introduction of a series of mass suture ligatures. The patient, despite every possible means of restoration succumbed to the tremendous blood loss one hour subsequently.

On microscopic examination the specimen was found to be recurrent chorio epithelioma.

E. L. CURTIS, M.D.

## ADNEXAL AND PERIUTERINE CONDITIONS

Calanico R. Histological Changes in Transplanted Ovaries in Animals (Le moiff h tol g he d trap a n gl m l) R g i d l i p 196 i 585

There has been a lively dispute as to whether the interstitial tissue of the ovary is the source of their endocrine function. Some authors hold that this interstitial tissue is a part of the reticulo-endothelial system.

The author did autoplasmic and homologous transplantation of ovaries in female dogs and goats, some of the ovaries being implanted just beneath the peritoneum and some of them in the cornu of the uterus. Histological examinations were made at regular intervals from ten days to a year after the operations. Detailed descriptions of the histological

findings are given illustrated by photomicrographs. The grafts undergo a process of involution, the ovule degenerating first, followed in sequence by the follicular cell, the germinal epithelium, the interstitial cells of the stroma and last the connective tissue.

The process of degeneration is not a true sclerosis because the tissue that is substituted for the original graft is rich in cells abundantly provided with blood vessels and does not retract. It is not a cicatricial tissue but rather a quiescent tissue because it is not called upon to function. It is ovarian tissue that has become simplified; it has not definitely lost its capacity for function but is capable of resuming it.

The author therefore is inclined to agree with those authors who consider it a part of the reticulo-endothelial tissue which has been differentiated by vital staining and which is a sort of neutral reserve tissue capable of developing in different ways as required. The specific follicular tissue is destroyed but it is the interstitial tissue that persists.

A clinical case is also described in which an ovary from a healthy young woman of 30 was implanted in a woman of 35 suffering from primary and absolute amenorrhea. A blood test before the transplantation showed that both individuals belonged to Group III. This identity of blood grouping is very important in making transplantations. The operation was performed on July 6 and the patient menstruated on August 19. She left the hospital much improved in general condition with a gain of about 4 kilograms in weight.

Often in cases in which the specific menstrual function is not restored by an ovarian graft, the general condition is improved because of the endocrine activity of the interstitial cells.

AUDREY G. MORGAN, M.D.

Kelle R. Is There Any Reason for Changing Our Principles in the Operative Treatment of Inflammatory Adnexal Tumors? (A still u de h ng pn c p d traite m p e o e des tume a l l ammato es) R H S d b i d g d P 1926 x 593

In the Strassburg Gynecological Clinic the treatment of inflammatory conditions of the uterine adnexa is essentially conservative, medical measures being used until it is distinctly shown by persistence of the symptoms that other treatment is indicated. On general principles operation is delayed as long as possible in order to allow the inflammatory manifestations to subside so that it will be easier to distinguish between the limits of healthy and diseased tissue. In spite of these precautions, however, the symptoms recur in the occasional case and on examination a new tumefaction is found at the site of operation, usually in an ovary which was not removed. In some of these cases a second laparotomy is necessary. The cases of recurrent symptoms may be divided into the following five classes:

1. Those in which immediately after operation considerable infiltration is found about the operative

(5.9 per cent) with an operative mortality of 1.4 per cent. Treatment with cautery amputation and radium re-ult in a five year cure in six of fourteen cases (42.9 per cent) with an operative mortality of 10.6 per cent.

Radium gave temporary relief from hemorrhage and discharge in 75 per cent of the cases treated. Pain may be relieved for a certain length of time but in a considerable number of cases pain seems to be increased by adnation. The average duration of relief of symptoms was about one year.

F. L. CORNELL, M.D.

Hilman, G. F. Carcinoma of the Cervix Uteri. A Clinical and Pathological Study. *A. J. Obst. & Gyn.* 9, 21, 74.

Histopathological examinations of operative and biopsy specimens were made in a series of 110 cases of carcinoma of the cervix uteri. The specimens were divided into two main groups: adenomatous and solid. The solid tumors being subdivided according to the predominating type of cancer cell into ripe midripe and unripe.

Adenomatous tumors represented 5.4 per cent of the total and the solid 94.6 per cent. Of the solid tumors 24 per cent were of the ripe, 9.8 per cent of the midripe and 46.2 per cent of the unripe variety. Cornification occurred in all of the ripe tumors, in 43.8 per cent of the midripe but in only two cases of the unripe.

The presence of large numbers of eosinophiles in microscopic sections of carcinoma of the cervix may be a favorable prognostic sign when treatment with radium is employed.

No relation between the age of the patient and the type of tumor could be established.

The disease was limited to the cervix in 28.1 per cent of cases. When the first examination was made during the early stage most of the tumors were found to be of the ripe variety. The clinical appearance of cancer of the cervix is either that of ulceration, induration or cauliflower-like outgrowth. The clinical relation between the clinical appearance and the histopathology of the tumors is impossible to determine the extent and duration of the disease from the length of time that symptoms have been present.

E. L. CORNELL, M.D.

Healy, W. P. Radium Therapy in Carcinoma of the Cervix. *A. J. Obst. & Gyn.* 1927, 1, 11, 16.

In the eight years from January 1, 1918 to December 1, 1925, 836 cases of primary carcinoma of the cervix were admitted to the Memorial Hospital of New York City for treatment. Of this number 101 cases (12 per cent) were classified as clinically curable. However, the parametrial lymph glands involved with the uterus and adnexa showed metastases in from 35 to 66 per cent in these so-called curable or favorable cases. Therefore one or two out of every three cases in this group if subjected to hysterectomy only would probably have shown a recurrence within one or two years.

Of the 836 cases, 130 (15.5 per cent) were grouped as borderline or moderately advanced cases with invasion of the vaginal fornices or parametrial tissues. In these cases operation would have removed only the gross disease and cancer might have promptly recurred in or about the vaginal vault and broad ligaments.

Therefore at the Memorial Hospital radium and the X-rays were used and proved valuable in relieving and possibly in preventing the appearance of cancer in the parametrium after the primary lesion was destroyed. In the early cases the primary lesion can be destroyed by electrocoagulation, cautery, amputation of the cervix, hysterectomy or salpingectomy. But unless the parametrium is promptly treated cancer will quickly develop. In the borderlines or advanced groups radium on the periphery is the best and safest form of treatment from the standpoint of relief of symptoms, prolongation of life and possibly the entire elimination of all active disease.

Since January 1, 1922 the cross-fire method of irradiation has been used in all cases of cancer of the cervix. The maximum primary dose of radium is used in and a joining the lesion and this is supplemented later with low voltage X-rays externally. Of 16 early cases, 68.7 per cent are still alive and well, of 27 borderline cases, 37 per cent are still alive of 80 advanced cases, 17.5 per cent are still alive.

In 1922 twenty-eight cases of recurrence were treated with radium and the X-rays of these 31 per cent are still alive. These patients had been operated on unsuccessfully in other hospitals and when they applied for treatment definite palpable masses could be identified in the pelvis. In some instances biopsy to confirm the diagnosis was possible.

SAMUEL J. FOWLER, M.D.

Bland, P. B. Hydatidiform Mole Complicated by Perforation of the Uterine Wall and Secondary Chorioepithelioma of the Pelvis. *A. J. Obst. & Gyn.* 1927, 1, 11, 189.

The case reported is one of hydatidiform mole with perforation of the uterine wall and secondary chorioepithelioma of the pelvis.

The patient aged 30, whose last period was August 28, 1924, as first seen on December 1, 1924, six weeks prior to admission she experienced constant pain in the lower abdomen followed by a bloody discharge which persisted.

The uterine body uniformly enlarged extended to the umbilicus. The blood count showed marked anemia which was improved by a blood transfusion.

Thirty-six hours after admission the patient expelled a fetus, some placental tissue, principles of membrane and large blood clots. After the expulsion of these materials the bleeding abated considerably but the uterus remained large. At midnight of the second day following admission the expulsion of a large mass of irregular blood clots was followed by profuse bleeding. The clot contained cystic masses (frog's eggs) of varying size. Five hundred cubic centimeters of blood were given.

3 During the intermenstrual period the patient had greater strength and vitality

I L CORNELL M D

Werner P Roentgen Ray Treatment of Benign Gynecological Diseases *Am J Obst & Gynec* 9:7 x 54

Very small doses of the X rays do not weaken or destroy but actually stimulate the function of the ovaries. No ever after X ray treatment for gynecological conditions the incidence of abortion, from two to three times that in non radiated mothers. The children often exhibit retardation in physical development a high death rate in the earlier months of life and a high morbidity. This striking similarity with the results of animal experimentation must make us apprehensive of a possibly more deleterious effect that might manifest itself only in the next generation. There can be no doubt that we should exclude from radiation all women for whom the possibility of pregnancy exists.

All kind of hemorrhages in benign affections have been treated by subjecting the spleen to the X rays. In 100 per cent favorable effects followed a single radiation. If the hemorrhages could not be influenced radiation was repeated after a few days but results of repeated radiations were not satisfactory.

Radiation of the spleen is particularly valuable in the metrorrhagias resulting from fibroma or incident to the chloacterium. In cases in which spleen radiation produces a failure the X rays may be applied to the liver. Small X ray doses are administered to the hypophysis in cases of hypo- or dysfunction of the ovaries. A field 2 by 2 centimeters about at the center between the outer circumference of the orbit and the anterior boundary of the external auditory meatus on either side of the head is given one third of the skin erythema dose.

Treatment in cases of dysmenorrhoea and amenorrhoea gave some surprising results. Pain severe enough to defy all types of treatment and requiring the administration of morphine disappeared completely after radiation. But the results were not always permanent.

E L CORNELL M D

Nicholson G W Endometrial Tumors of Laparotomy Scars *J Obst & Gynec Brit Emp* 9:6 xxxii 60

Cases of endometrial tumors arising in laparotomy scars are rare. Twenty eight are summarized

from the literature. The tumors occurred in adult women between the ages of 2 and 50 years the average age being 36. They were usually associated with disturbances of menstruation. The laparotomy had been performed as long as 25 years or as recently as 2 years previously. The tumor was noticed after an interval of from a few weeks to 21 years. Menstruation was often markedly increased in the size of the tumor and pain and in three cases was accompanied by a bloody discharge from the surface of the tumor. The tumors were restricted to the lower half of the abdominal wall. Fifteen of the cases occurred following ventrofixation of the uterus and 6 cases followed operations on the tubes and ovaries without hysterectomy. One or two cases followed operation for rupture of the pregnant uterus appendicectomy hysterectomy and operations on the round ligaments. Smooth muscle was present in five cases.

The author considers the theory of the embryonic origin of these tumors untenable. The vitelline ducts and the urachus are of endodermal origin and could not develop mesodermal tissue. Such tissue could develop from wolffian remnants only within or very close to the broad ligaments. Von Recklinghausen's hypothesis of the origin of adenomyomata is based on inference unsupported by definite evidence. In regard to Sampson's theory of the endometrial origin of these growths the author asks:

Is it not inconceivable especially when we bear in mind the fate of transplanted tissues in general that seminiferous desquamated cells the physiological fate of which is to die should not only settle and grow in a foreign situation but proliferate with a vigor vastly superior to that of the endometrium? The best theory hitherto devised to account for the tumors is that they arise from a proliferation of the peritoneal epithelium in response to an irritation the nature of which is not known. This is indicated by the fact that they often permeate from without the wall of the uterus gut and other structures and may be directly continuous with the peritoneal epithelium. These growths are clearly hyperplasias or accessory uteri. The perfection of their histological structure and the performance of the physiological functions of the endometrium for example decidua formation and menstruation indicate that they are accessory uteri. They are tumors in their often isolated and independent mode of growth and the assumption of irregular shapes.

GOODRICH C SCHUTTLER M D

field This infiltration cannot be regarded as a recurrence as it is nothing but a continuation of the inflammatory process and shows that the operation was done too soon

2 Those in which the recurrence develops a few months after the operation In the unemoval ovary or tube the morbid process continues and a new tumefaction develops This type of recurrence also has become rare since operation has been delayed as long as possible

3 Those in which a new tumor develops in an ovary which appeared normal at the time of operation but at reoperation the tumor is found to be due not to an ovarian infection but to the adhesion of intestinal loop and omentum around the first operative site

4 Those in which cystic formations develop in the ovary which was not removed

5 Those with peritoneal cyst formation at the site of the adnexa which were the sites of inflammation

The true recurrent adnexal tumor usually causes symptoms resembling those produced by the first tumor The constant sudden pain and a peritoneal reaction are often developed during menstruation Cyst formation has a rather late development slow growth and few symptoms In cases of dilation of the intestines around a relatively healthy ovary the tumor differs in volume at different examinations

The author draws the following conclusions

True inflammatory recurrences after conservative operations for adnexal tumors are rare at the Strasburg Clinic

These recurrences are prevented to a large extent when the operation is delayed as long as possible

In certain recurrences a cystic tumor develops at the site of the ovary which was not removed

The cystic formations may cause symptoms necessitating another operation

There seems to be no necessity to change the mode of procedure used at the Strasburg Clinic

In the case of young women the attempt should be made to conserve the uterus and ovaries or at least a part of an ovary in order to prevent the artificial menopause S. L. T. R. E. I. L. M. M. D.

### MISCELLANEOUS

Whitehouse B. A Contribution to the Pathology of the Cause of Dysmenorrhea J. Obst. & Gynaec. B. L. Emp. 96. 1. 67

The sexual cycle in the human female can be considered as divided into two phases a positive and a negative The positive phase is initiated by ovulation and covers the period of development of the corpus luteum The negative phase is initiated by the death of the ovum and in particular by the degeneration of the decidual cells of the corpus luteum The author prefers to limit the use of the term dysmenorrhea to a pathological entity in which there is a reflexion of the overdeveloped menstrual mucosa associated with severe pain and a reserve

the term menorrhagia (Massey) for the painful concomitant of a variety of conditions associated with menstruation and at present wrongly called dysmenorrhea True dysmenorrhea as distinct from menorrhagia is an exaggeration of the positive phase and is due to hyperactivity of the corpus luteum or high vitality of the unfertilized ovum This conclusion is based on the high degree of development evident in the endometrial fragments in these cases The author speaks of such menstruation as a menstrual abortion for which he uses the term nonconceptional dysmenorrhea So called membranous dysmenorrhea is merely an extreme degree of this comparatively common condition of the menstrual decidua

The event of the pain is directly dependent on or proportional to the extent of denudation of the menstrual endometrium and to the size of the fragments expelled Contrary to the prevalent opinion the expulsion of the fragments and clots is not an important factor in pain production nor is the pain dependent in more than a secondary sense upon the anatomical configuration of the uterus or the nervous control of the menses

The aim of treatment should be to initiate an early negative phase by inducing degeneration of the corpus luteum Operations on the uterus can be regarded only as palliative in the treatment of pain associated with nonconceptional dysmenorrhea

GOODRICH C. L. AND VETTER M. D.

Allen F. Compare E. L. Jr. and Austin W. C. S. M. Results Obtained with Parathyroid Extract in the Control of Idiopathic Menstrual Bleeding Am. J. Obst. & Gyn. 97. 1. 56

The authors present an initial report on four cases in which they gave parathyroid extract in effort to control idiopathic menstrual bleeding They recommend a total dosage of from 120 to 160 units given in divided doses of units morning and evening The best results were obtained by starting the intramuscular injection two days before the menstrual period was due

All of the patients were encouraged by the results of the injection They were convinced that their period was shortened and that the actual blood loss was distinctly less than their previous period They were of the opinion that the intermenstrual interval was characterized by a greater amount of strength, vitality and energy than they had previously experienced

The danger of producing hypercalcaemia is very small even very large doses may be given with safety

The authors conclude that the calcium content of the blood following doses of parathyroid extract does not show the increase reported by Kylin but that

1. The bleeding time and clotting time of the blood were distinctly shortened

2. The number of days of menstrual bleeding as well as the amount of blood lost was appreciably reduced

of the specialist. This occurrence is very often due to the fact that the customary order of procedure has not proved satisfactory that on some previous occasion the midwife or physician has mistaken the nature of the patient's condition. There has been a failure of diagnosis and of prognosis. To prevent such failures, clinical teaching must intervene. Every effort must be made to train capable midwives, obstetrical physician, and obstetrical specialists.

Many medical students study only with the examinations in view and after they have been present at the minimal number of labors demanded they regard the obstetrical amphitheater and all that occurs therein as unimportant. The reason for this may lie in the extensiveness of the curriculum. The only solution seems to be the requirement that the student spend at least three months of the year in obstetrical work. In practice the attendants of patients of each of the three groups must maintain high ideals but must also understand the limits of their own field and act accordingly.

Sellheim concludes his article with this statement: "When it is borne in mind that the patients concerned in this division of labor are our own wives and children, everyone will be glad to see this mutual co-operation carried into effect since we are all agreed that our own people must prosper. In this period of decreased birth rate and increased unwillingness to bear children we must strive under all circumstances to attain as nearly as possible such obstetrical skill that not a single mother or child will be lost whether the labor begins or ends under the care of the midwife, the obstetrical physician, or the obstetrical specialist."

FLER (G)

Frankl O. Delayed Hemorrhage Following Delivery and Abortion (Ubratpblutgepost im metboium) I f f G d k p o x n 87

In 13 cases of bleeding occurring eight days or more after delivery or abortion, decidual cells without villi were found. In seventy-three there were symptoms of inflammation. The 133 cases were taken from 400 of late hemorrhage in most of which chorionic villi were found in the uterine scrapings.

Of twenty-three cases in which hysterectomy was done, six were identified in even ten in some other disease caused the bleeding (carcinoma, myoma, etc.). In six no such cause was found.

At microscopic examination reveals decidual areas often with dilated vessels with or without chorionic cell. Sometimes the compacta and the spongiosa can still be identified. The entire area is hyaline or made up of decidual cells interspersed with hyaline tissue. The dilated vessels contain fluid or clotted blood. In some instances there are found on the surface of the involuted mucosa with or without evidence of inflammation dilated blood vessels with hyaline zone about them in which there are decidual cells or chorionic cells. At times there is seen in the outer layer of the mucosa a large number of much narrower vessels which are much better

involved than those on the surface. The deficient involution, regarded by Frankl and Kermmauner as the cause of the late hemorrhage.

Late bleeding seemed to occur most frequently when the abortion occurred in the second month of pregnancy. Hemorrhage occurring later than twelve weeks after an abortion can scarcely be ascribed to the abortion.

The spongiosa reverts to a mucosa of the postmenstrual type while the compacta which has the power to only a lesser extent undergoes hyaline degeneration and the late bleeding comes from the sinus like blood vessel. The frequency of delayed hemorrhage in older women and after many abortions suggests that the inflammation frequent in such cases may have been the cause of the abortions.

WALKER (G)

## PUERPERIUM AND ITS COMPLICATIONS

Kuestner H. Changes in the Lochial Secretion Following Vaginal and Uterine Examinations

Veränderungen des Lochialsekretes nach Unter-  
suchung der Keimhinnen und des Scheidens  
der Gebärmutter aus. Ztschr. f. Gyn. 1921

After mentioning the two possibilities of infection by vaginal examination (the transportation of infectious material from the vaginal introitus into the upper portions of the vagina and of bacteria from the germ-laden vagina into the bacteria-free cervical canal) the author cites Sellheim's recommendation that an exploratory procedure be called vaginal only when the borders between the bacteria-free and bacteria-laden areas of the birth canal are not passed. Sellheim was the first to call attention to the difference between examinations in which the examining finger was restricted in its activity to the vagina and those in which it passed the cervical inlet.

As late as 1921 the textbooks on midwifery still recommended examinations which could be accomplished only by inserting the finger through the cervical inlet. The danger lies in the presence of small abrasions and the formation of small hematomata at easily infected points where because of tissue necrosis conditions are very unfavorable for healing.

The author reports his studies made on three groups of thirty women each. The lochial secretion was obtained from the posterior vaginal vault by means of a slender glass tube at intervals of twenty-four hours mixed with an equal amount of defibrinated blood and cultured on agar plates. Virulence tests were made by the Ruge I Phillips method.

The first group was made up of women who were not examined. In these the constant increase of streptococci described by Loeber was found. In the second group were women who had been subjected to a strictly vaginal examination. In these the percentages of streptococci were as follows: on the first day 100 on the second day between 30 and 40 on the third day and 0 on the fourth day. The author explains the decrease on the second day to destruc-

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Williams J. W. Placenta Circumvallata 1m J  
Obst. Cy 9751

In placenta circumvallata the ring may vary greatly in gross appearance. In some specimens a true annulus fibrosus is present and presents a thick rounded inner border so that it forms a wall about the central chorionic area which may lie several millimeters below the surface of the ring. In other specimens the ring is thinner its inner margin appearing to be undermined and on cross section appearing as a tongue shaped process projecting over the chorionic area and separated from it by a slit like space. Such variations are dependent upon the extent to which infarct on has occurred in the ring and the adjoining tissues.

The microscopic findings are usually sufficiently comprehensive to indicate that the ring has resulted from a folding or duplication of the fetal membranes at the margin of the chorionic membrane. Peripheral to the ring the picture is radically different as there is only a single layer of membranes consisting of amnion chorion laeve and decidua capsularis beneath which may be a narrow space bounded on its other side by the layer of decidua covering the extra chorionic portion of the fetal aspect of the placenta with which the chorionic villi are in immediate contact without the interposition of a chorionic membrane.

The abnormality must originate in the early stages of placentation that is during the very first weeks of pregnancy. It results from a primary limitation in the extent of the chorion frondosum. If further development of the pregnancy is to occur it is necessary for the villi at the periphery of the developing placenta to proliferate obliquely outward in so doing to undermine the adjacent decidua.

The variation in size and thickness of these placentae are well within the normal limits. The abnormality exerts no effect upon the development or health of the child. The condition does not present any special abnormalities of the third stage of labor. L. L. Cox M.D.

Waters E. G. The Treatment of Hyperemesis Gravidarum with Glucose and Insulin. Report of Eighteen Cases. J. Obst. & Gyn. 97: 119

Of eight cases of hyperemesis gravidarum three had been treated previously by the administration of a high carbohydrate diet saline hypodermic injections a sufficient fluid intake intravenous injections of corpus luteum and symptomatic treatment of nausea. Intravenous injections of glucose and insulin were given with

curative effect. There was no recurrence but the cases could be classified in the serious group of Titus the condition having caused emaciation dehydration beginning nephritis and early jaundice alone or in various combinations and acidosis. In fourteen cases one injection caused the cessation of the vomiting within twenty-four hours. The average hospital stay was thirteen days.

F. L. Cox M.D.

## LABOR AND ITS COMPLICATIONS

Sellheim H. Improving Obstetrics by the Division of Labor (II) Bulletin of the American Medical Association 1925: 119

In obstetrical practice it is of the greatest importance but most difficult to estimate correctly beforehand the possibility for spontaneous delivery in a given case that is to determine whether an early spontaneous labor may be expected (Group 1) or whether from the very beginning some form of operative aid will be necessary (Group 2). Between the two extremes are the cases of Group 3 in which there is doubt as to whether delivery will occur spontaneously or assistance will be necessary. It is in this last group that special care and watchfulness are indicated. The patients of all three groups will fare best when there is a division of labor between the midwife the obstetrical physician and the specialist in the obstetrical clinic.

This division of labor has a material basis and is entirely independent of the personal element. The midwife has almost no operative method the general practitioner has an effective instrumentarium and drugs and the obstetrical specialist has the resources of the hospital and its complete instrumentarium. However patients must not be divided arbitrarily into the three groups mentioned. It is most important for the physician to determine if and when a patient passes over during labor from one group to another as from Group 1 to Group 2 and from Group 2 to Group 3. In the first of these transitions the midwife calls upon the physician and the physician refers the patient to the specialist in obstetrics. In the process the telephone and the automobile are indispensable aids.

Sellheim recognizes the fact that such a transference may be unpleasant for both the attention and the patient but he emphasizes that personal feelings should not be considered. Often the patient herself breaks through the other mentioned for even when her labor will most certainly be easy she does not employ the midwife but summons the physician or even goes to the hospital at once in the case



ph blast and decidua is very difficult in places. The blood vessels of the decidua encircle the trophoblast and extend up under the capsular layer where they become smaller. The dilatation and the growth of the blood vessels at the base of the ovum are due to the stimulation of the latter.

The decidua is described in detail. The epithelium of the capsular decidua is much lower and at the top of the ovum is entirely missing. In places the capsular portion consists only of coagula containing isolated cells (trophoblast). The decidua is separated from the trophoblastic shell by a distinct fibrin layer but trophoblastic cells lie also on the other side of it in the decidua. The syncytium is missing at the site of closure of the vitelline cavity which is free from villi but at this point there are definite trophoblastic cells which penetrate through the openings in the fibrin layer toward the surface.

The closure is not brought about by decidual cells. The closing plug is formed from a crumbling basic mass with infiltrating cells, the cells trophoblastic cell and decidual cells degenerate as do also the erythrocytes and leucocytes. Syncytium is found only where the ovum comes in contact with the maternal blood.

The blood vessels around the vitelline cavity are described in detail. The main mass of the arterial blood comes from the basal layer.

According to its size and development this embryo must be grouped in Grosvet's table (1924) under Group C. 1. Peculiarities such as the presence of a cephalic process may be ascribed to individual variations.

This very detailed description is a valuable addition to our knowledge. MEYER (C)

Oettingen on Comparative Studies of the Blood of the Mothe and Child (V. ple hode l. ter m. h. g. de m. u. l. h. u. d. h. d. l. ben. Blutes) 4 k f. (m. k. q. 6. x. 1. 1. 5)

The author reviews not only his own findings with regard to the characteristics of the blood of the mother and the child but also those of other investigators. The report is supplemented by an extensive bibliography.

von Oettingen studies the physicochemical properties of the plasma of the non pregnant woman, the pregnant woman and the newborn infant as shown by their reaction to heating, precipitation with ammonium sulphate, precipitation with sodium chloride and precipitation with alcohol. The reaction corresponds to the solubility on time. In maternal blood an extreme readiness to react because of the great lability of this blood whereas in the blood of the child there is marked resistance to the reaction because of the great stability of the blood.

Hermans was determined by mixing serum and different sera and the different sera and test in the serum. Hermans was marked in the blood of the pregnant woman moderate in that of the non-pregnant man and absent in the blood

of the infant. In the infant a blood however it was produced by heating to 100 degrees C. A role played not only by the greater lipid content of the maternal blood but also by certain physical properties of the blood (increased availability and powers of reaction of the lipids brought about by heating). The blood of the newborn child lacks the hemolytic powers that are present in normal adult blood and are increased in pregnancy. It lacks also bacteria agglutinating power.

Determinations of the coagulability of the different bloods as affected by Dabois poison (a snake poison that hastens coagulation) showed differences in the sedimentation time of the red cells and the precipitation of the corresponding plasma. When calcium chloride was added to the blood (optimal concentration 1 to 1.5 per cent) the coagulation occurred in the blood of the newborn in fifteen minutes in normal adult blood in thirty minutes and in the blood of the pregnant woman in forty five minutes. The author summarizes his results as follows.

With relation to coagulation hastening poisons there was found in the plasma of the pregnant woman, the non pregnant woman and the newborn infant a gradual gradation since in the maternal blood coagulation took place quickly and the coagulability of the blood of the newborn child was considerably less than that of the normal adult.

On the administration of calcium under optimal conditions coagulation varied in the opposite direction the very rapid coagulation of the plasma of the newborn infant standing in sharp contrast to the considerably delayed coagulation of the plasma of the pregnant woman and the normal plasma again holding in intermediate position.

The plasma of the pregnant woman showed the greatest intensity of coagulation and that of the newborn infant the least.

Tests of the resistance of the red cells showed a considerable decrease in the resistance in the blood of the pregnant woman and a very strong resistance in the blood of the newborn infant.

The plasma of the newborn infant is a colloidal precipitant while the plasma of the pregnant woman lacks this property.

An attempt was made to precipitate collargol by the plasma of the newborn infant. In the pregnant woman the surface tension of the plasma is less than that of the plasma of the newborn infant.

With regard to osmotic pressure, conduction and viscosity of the different bloods only the literature was reviewed. The findings as to the osmotic pressure are not in agreement. The work of the various investigators is cited especially that of the Schroeder clinic.

Studies with the refractometer and determinations of the total nitrogen and water content showed that during pregnancy, childbirth and eclampsia and in the newborn infant the protein content of the blood is lower than in normal adult blood. Maternal serum is richer in water than normal adult blood.

tion of the bacteria in the upper reaches of the vagina where the defensive secretions are especially copious. In the third group were the cases in which the examining finger had passed the cervical inlet and invaded the uterine cavity. In these cases the percentages of streptococci was 50 on the first day more than 70 on the second day and almost 100 on the third day. These high percentages were not due entirely to the examination. To other factors which may have accounted for them were (1) infection from the penetration of bacteria into lesions (myometritis) and (2) the entrance of bacteria into the uterine cavity (puerperal endometritis).

Other investigations have shown that avirulent streptococci may become highly virulent on necrotic tissue.

From these findings the author has come to the conclusion that vaginal examination is a harmless procedure becoming dangerous only when the uterine cervix is passed.

ODENTHAL (G)

Van Dol en W W The Fall cy of the Present Treatment of the Postparturient Breast  
Am J Obst & Gy 1927 236

The author cultured the mouths of fifty nursing babies from 3 days to 2 weeks of age and found them to be almost entirely free of either streptococci or staphylococci organisms found on thirty of fifty cultured breasts. The saliva of a nursing child was found to be a good medium for the growth of bacteria. After a thirty six hour growth period there was practically no difference in the number of bacteria per field in the cases in which the breast was washed with boric acid solution and those in which the cultures were made from unwashed breasts.

Hypochlorite seems to be an antiseptic safe for both mother and child. Experimenting in fifty cases with solutions of varying strengths Van Dol en found that when sopped on the breast with a square of sterile gauze for one minute a solution as weak as one tenth of 1 per cent will kill all surface bacteria. A culture of a breast thus treated showed no growth after thirty six hours. Bacteria would not grow in a 2 cc mixture of hypochlorite and broth (hypochlorite one tenth of 1 per cent).

E L CORNELL, M D

### MISCELLANEOUS

Stile H A Human Ovum 13½ Days Old Implant in the Uterus and Obtained by Operation  
(In a 13½ Tage lites d r G ba m tter hal t es u d d ch E gnü g mens hich s Li) Jak b f M pl l k kop A of 1926  
vi 95

This article describes in detail a young human ovum. The woman 34 years of age had borne two children and had had no miscarriages. For one year she had had profuse menstruation lasting six days every three weeks and as a result was so weakened that hysterectomy was necessary (Seligman). An early pregnancy was suspected which it was be-

lieved the weakened woman should not be allowed to carry to term.

The corpus luteum was situated on the left side and the ovum near the right tubal angle. According to the last hemorrhage which was much less severe than the others the age of the ovum on the basis of menstruation was 8½ days but according to the previous menstruation it was 29 days. Its age since conception was 3½ days i.e. reckoning sixteen days after the beginning of the menstruation. The ovum was slightly elevated above the surface of the mucous membrane and surrounded by blood filled decidua. The capsular decidua also showed wide tensely filled vessels. The description of the embryo is supplemented with forty six illustrations.

The chorionic cavity showed a uniform mesoderm that penetrates everywhere in villi both covered by a uniform Langhans layer and a simple layer of syncytium presenting in places large vacuoles. The Langhans layer passes over to the villous layers in larger collections of cells. In the mesoblast of the villi many cells show division and in the centers of the large villi two or three nuclei are often enclosed in a common cytoplasmic mass apparently vascular anlagen without blood. The pedicle of the allantois shows a similar structure. Epithelial cells appear to be the remains of an amniotic duct but very similar cells are to be seen in considerable numbers at other places in the pedicle of the allantois. Moreover it contains islands of blood and also endothelium of blood vessel walls. Islands of blood are present also on the surface of the vitelline sac and between the ectoblasts of the vitelline sac and those of the covering. It is probable that the blood vessels of the chorion derive their blood from the surface of the vitelline sac and the pedicle of the allantois.

In the early weeks of pregnancy the capacity of the amniotic sac is very great in comparison to the size of the embryo. If the amniotic sac kept pace with the embryo in its growth it would have a capacity of about 400 liters at the end of pregnancy.

Nine hundred and forty two pedicles of villi are uniformly distributed over the surface. They are larger at the base ranging up to 1.0 mm in length (average 0.7 mm) but at the top on the capsule measure only 0.3 mm. The coagulum plug has no villi.

The branching of the villi is tree like and bush like. All of the villi are embedded. A trophoblastic shell connects the tips of the villi. Occasionally two villi of different pedicles are connected by their mesoblast.

Another important finding is that the cells of the basic layer (Langhans cells) in the covering of the villi are drawn into the syncytium. The remains of the implantation syncytium are found throughout the decidua at the juncture of the latter with the trophoblast and also in the wide blood spaces which extend from the blood vessels to the intervillous space. Other than chorionic (trophoblastic) giant cells are not to be found. The differentiation between tro-

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

Mattes A. Bilateral Pyelo Uterograms. A New Conception of the Rationale. *J Am Uss* 1971 x 16

Mattes reviews pyelography from Voelcker and von Lichtenberg's studies in 1906 up to the present time. In his own experiences with bilateral pyelography in 229 cases he found that from 1 to 3 c cm of sodium iodide solution is sufficient to give accurate pictures.

He believes that in most cases bilateral pyelography is safe much more apt to be painless than unilateral pyelography and preferable to the latter whenever possible because a complete study can be made at one cystoscopy. No attempt is made to prepare his patients for cystoscopic examinations. He insists upon small amounts of fluid and uses a 40 per cent solution of sodium iodide.

An interesting development of the discussion of this report was the opposition to routine bilateral pyelography by Kretschmer and Thomas.

ELMER HESS MD

Stevens W E. The Diagnosis of Renal Tuberculosis. Report of Cases. *J U A S* 97 1 x 7

In renal tuberculosis the tubercle bacillus is often absent from the urine before the condition extends to the pelvis of the kidney and when the ureter is occluded and at times is not found in the urine even when the renal pelvis is involved and the ureter is patent. Renal tuberculosis is often discovered first at autopsy there having been no symptoms during life. In one case guinea pigs inoculated from each kidney developed tuberculosis though following the removal of the right kidney inoculation tests from the left kidney were negative and the patient was well after one and a half years. In other cases inoculations have failed to cause tuberculosis in guinea pigs when slides and cultures were positive. Lowenstein says that we cannot depend upon an animal inoculation to determine whether or not a strain pathogenic to man. This information must be obtained from pure cultures. In cases presenting only such symptoms as bladder irritation and the presence of pus and blood in the urine negative urine culture is of definite diagnostic value.

Pressure on the urethra through the vagina and ectum may reveal an indurated and nodular ureter. Subcutaneous injections of indigotine may help to locate the ureteral stricture. Wilhoelz says that a little pus and a few tubercle bacilli are pathognomonic of renal tuberculosis when there is an increase of renal function. The tuberculin test is important only when it is positive.

In tuberculosis of the bladder the capacity of the bladder is decreased as a rule and listention is usually more painful than in any other pathological condition of the urinary tract.

Positive roentgenographic findings can be detected in from 15 to 30 per cent of the cases. The shadows are of four kinds—numerous small areas, one or several large areas, diffuse areas, and areas of calcification. Pain and tenderness are less pronounced in tuberculous infection than in cases of stone but stones may be found in a tuberculous kidney. The putty kidney is rare but may be diagnosed from the X-ray picture alone.

Renal tuberculosis occurs most frequently between the ages of 30 and 50 years and is rare under the eighteenth year. It is very rare in pregnancy. When it is unilateral immediate nephrectomy is indicated.

BENJAMIN F FOLLETT MD

Herbst R H and Polkey H J. Ectopic Uteral Openings. Report of a Case. *J U A S* 97 11 6

The authors report a case of ectopic uterine orifice in the vagina. The chief signs was incontinence.

From a review of the literature they conclude that heminephrectomy is often indicated in such cases as the majority of ectopic uterine orifices belong to supernumerary ureters which drain a part of a double or fused kidney and in many cases the ureter is dilated and the part of the kidney it drains is dilated and infected making implantation uncertain. However when the lower end of the ureter is accessible and a study of the upper urinary tract fail to show any marked dilatation and infection some type of implantation may be advisable.

J SYLVIA RITTER MD

Tolson H L. Uteral Stricture in the Male and Female with Particular Reference to the Symptoms and Diagnosis. *S G G* 97 11 43

The author reviews 100 consecutively treated cases of uterine stricture dealing chiefly with the symptoms and diagnosis. Seventy five of the patients were between the ages of 21 and 40 years and 62 were females.

Uterine stricture is a common pathological condition. In a large percentage of cases the tonsils are the source of the infection. The chief complaint is usually a pain in the abdomen or back. The pain has a wide range of intensity and is variable in type.

From the history and physical examination the diagnosis of uterine stricture can usually be made with a fair degree of certainty. The ultimate diagnosis must of course be made by cystoscopic

but the highest water content is found in the blood of the newborn infant. On the average the residual oxygen and urea nitrogen are higher in the blood of the newborn infant than in the blood of the pregnant woman. Uric acid is increased in the mother's blood at the end of pregnancy and especially at the time of birth and is high also in the blood of the child.

Amino acid nitrogen is high in the newborn infant and normal in the mother. The content of preformed creatinin is about the same in the blood of the mother and child but was found increased once in a case of severe eclampsia.

Calcium and inorganic phosphorus are increased in the child. In the mother the calcium content of the blood is decreased at the end of pregnancy and in eclampsia. The phosphorus content is only slightly decreased in normal pregnancy and in eclampsia may be very greatly increased.

The sodium and potassium contents of the sera of pregnant and non pregnant women show little difference but are increased in the newborn infant.

Reference is made to work on the sugar and lipid contents of the blood of the mother and child. The sugar content of the whole blood, the plasma, the serum and the blood cells is increased in the mother and the child.

In the pregnant woman the lipid content is increased in the serum but not in the blood cells. The components of the lipid complex in reverse proportionately. The serum of the child's blood is marked as poor in lipids whereas the whole blood of the child has a considerably higher lipid content than the whole blood of the mother. Apparently therefore the child's red blood cells are particularly rich in lipid.

BON (G)

comprehensive series of studies during cystoscopy viz right angle forward and retrograde cystoscopy posterior urethroscopy and ureter catheterization with the same outer sheath and without breaking his aseptic technique the fingers of both hands which touch only the sterilized portions of the instrument and ureteral catheters being kept quite distant from the face. The ability to rotate the instrument without revolving the irrigating apparatus and connecting handle is a very great advantage. The large stopcocks greatly facilitate vesicle lavage and evacuation. Altogether the instrument seems to provide innovations of considerable value for the many old problems encountered in cystoscopy.

J I DWIN KIRKPATRICK, M.D.

Roe D K. The Determination of Bladder Pressure with the Cystometer. A New Principle in Diagnosis. *J Urol* 45: 971, 1941.

Measurements of bladder pressure are of great value in diagnosis particularly in solving such problems as whether a case is of influence of neurogenic origin and if so which set of nerves is chiefly involved.

Roe has devised an instrument called a cystometer by means of which intracystic pressure can be measured with sufficient accuracy to afford important clinical information. It consists of a 15 cc syringe encased in a box which is operable by hand or by foot and by means of a two-way valve forces a more or less steady stream of fluid through a catheter or a cystoscope each cubic centimeter of such fluid being recorded within five simultaneously with the intracystic pressure. The information obtainable is therefore the exact intracystic pressure as the bladder is being filled from the first cubic centimeter to full capacity. The pressure is measured in millimeters of mercury, and the result is registered as a curve between millimeters of mercury and cubic centimeters of fluid.

Quite exact data can be obtained also as to the strength and sensibility of the bladder wall by noting bladder sensations with the varying intracystic pressures and the associated amounts of fluid.

GILBERT J THOMAS, M.D.

Fullerton A. Tuberculosis of the Bladder and Kidney. *I J Urol* 56: 197, 1947.

Primary tuberculosis of the bladder is so rare as to be almost nonexistent. The epididymis is often a source of bladder tuberculosis but bladder tuberculosis is usually secondary to tuberculosis of the kidney. The author has frequently seen infection of the kidney followed by secondary involvement of the prostate seminal vesicles and epididymis. In some cases there has been a definite focus of tuberculosis elsewhere in the body such as tuberculous glands in the neck, pleurisy, hip disease and caries of the spine or pulmonary tuberculosis which had undergone a cure or remained more or less inactive. In many cases the patient is extremely healthy in appearance has no evening rise of temperature and

except for a very marked frequency of urination enjoys almost robust health.

Patients with tuberculous lesions of the urinary tract almost always have frequency of urination. At first this is slight but it tends to become more marked. Later there is hematuria at the end of voiding and soon there is an almost constant desire to empty the bladder and the act of micturition is associated with considerable pain and straining. In about 50 per cent of the author's cases of renal tuberculosis there was pain of varying severity. Severe renal hematuria occurred in only a very few blood in the urine usually being associated with inflammation or ulceration of the bladder.

In all cases of frequency of urination with pus in the urine an investigation should be made for urinary tuberculosis. While in rare instances tubercle bacilli and pus have been found in the urine in the absence of tuberculous involvement of the urinary tract their association with frequency makes the diagnosis certain. The testes epididymis and seminal vesicles should be examined. A rectal examination may reveal thickening of the ureter. In the female a thickened ureter is almost diagnostic of tuberculosis.

In advanced vesical tuberculosis cystoscopy may result in perforation of the bladder. It may be impossible to find one ureteral orifice but the finding of areas of apparently normal bladder mucosa here and there in the presence of severe vesical involvement is believed by the author to be almost pathognomonic of tuberculosis. When a positive diagnosis cannot be made in this manner Fullerton exposes the ureter through the usual gridiron type of incision. Pyelography is of value but not entirely devoid of risk.

The conversion of a kidney into a cross mass with an impervious ureter may be an attempt of the body to segregate the diseased organ. With our present knowledge we are justified in recommending nephrectomy as the best and surest method of effecting a cure of renal tuberculosis with or without secondary involvement of the bladder. If this is performed early before the bladder is involved relief is almost immediate. In any case it is followed by a better chance of a cure less liability to the crippling effects of scar tissue in the bladder and greater immunity from recurrence elsewhere.

CLAUDE D HOLMES, M.D.

Wade H. The Treatment of Tumors of the Urinary Bladder. *Ed J Urol* 19: 7, 1947.

The author discusses the nature of bladder tumor in general emphasizing the tendency of such neoplasms to cause early sudden hemorrhage and reviews in some detail the various methods of treatment.

Sudden painless hematuria in an apparently healthy person is due most probably to a tumor of the urinary bladder. Bladder contraction on papillary tumors after voiding is sufficient to cause

methods. When possible the passage of a ureteral instrument with a bulb and the feeling of a firm hang in the ureter during the removal of this instrument gives the most reliable evidence of stricture. In some cases only the smallest bougie or whale bone filiform can be passed at first.

Pyeloureterograms give dependable information regarding stricture.

The treatment consists in gradual dilatation of the stricture areas appropriate treatment of the associated pathological lesion in the urinary tract and the removal of all discernible foci of infection. Large bulbs on catheters and bougies can be passed with almost equal facility in the male and female through the McCarthy panendoscope.

The most valuable physical sign has been tenderness elicited by pressure made with one finger over a point approximately two fingerbreadths below and to either side of the umbilicus.

C. TRAVERS STREETER, M.D.

### BLADDER URETHRA AND PENIS

Robinson T. A. and Foulds G. S. The Late Results After an Operation for Ectropomy of the Bladder. *B. J. S.* 927 x 59.

The authors report the end result in a case of ectropomy of the bladder which was reported originally by Starr and Peters. The patient was first operated upon for left inguinal hernia in 1902 when he was sixteen months old. Three months later he was operated upon for prolapse of the rectum. On January 24, 1905 Peters transplanted the ureters into the rectum by the extraperitoneal method and removed the remainder of the bladder wall. In 1924, twenty years later, the patient was operated upon for perirenal and renal abscess.

This case is regarded as especially worthy of record because of the numerous operations and the fact that the patient was still alive and able to work twenty-one years after the operation for vesical ectropomy.

FL. IFR. HISS, M.D.

Young H. H.: A Critique of Modern Cystoscope. Presentation of an Instrument Embodying New Features. *J. U.* 197 x 7.

In co-operation with Wappler the author made modifications in the Brown Bueger cystoscope to overcome certain defects. The defects and the modifications made to correct them were as follows:

1. When the instrument was rotated the irrigating tube attached to one of the irrigating cocks became wound around the instrument considerably interfering with its free usage.

Modification: The stopcocks and the electrical connection were placed on a sleeve which rotates freely around the outer shaft of the instrument.

2. The eye piece was so close to the ureter catheters that they were likely to become soiled by touching the face or eyebrows. In rotating the instrument by the milled head of the objective the fingers were apt to touch the face or eyebrows and become infected.

Modification: The telescopes were lengthened and a milled metal disk 3 cm in diameter was attached to the instrument to allow it to be rotated without contamination of the operator's fingers.

3. The connection piece to which the cord was attached was so short that the left hand holding the instrument became infected from the cord.

Modification: The connection piece was lengthened and placed on the rotating sleeve.

4. The irrigating cocks were so small that irrigation was a slow and tedious procedure, wasting much time.

Modification: The stopcocks were enlarged to a diameter almost that of the interior of the cystoscope. A friction connect on may be used to attach the irrigation tube to the stopcock.

5. The device for fastening the telescope to the outer tube was unsatisfactory and often came loose during cystoscopy.

Modification: A hook latch was devised to hold the telescope to the sheath which makes a satisfactory fastening.

6. The right angle telescope did not furnish sufficient information.

7. The extreme posterior wall and the vertex of the bladder are difficult to see and of the interior wall and prostatic orifice only a distorted magnified and unsatisfactory view was obtained.

Modification: Four telescopes were provided which may be used with either a posterior sheath open on the convex surface or an anterior sheath open on the concave surface.

The right angle view, observation telescope and the right angle view double catheterized cystoscope are usually used in the anterior sheath for general cystoscopy.

The retrograde telescope has a new lens system. It is better to see it with the anterior sheath. It gives an entirely new view of the prostatic orifice and also of that part of the anterior wall of the bladder which is generally hidden behind the prostatic margin. Close or distant views may be had of the lobes of the prostate. When the instrument is revolved the view does not revolve with the instrument. This is the first removable retrograde telescope with the fixed lens system.

The forward view telescope has a line of vision directed 35 degrees from the right angle. It is best employed with the posterior sheath. With this combination the vertex of the bladder may be seen. It is especially valuable in the study of the posterior urethra, the verumontanum, ureter, ejaculatory ducts and internal portions of the median and lateral lobes in cases of hypertrophy.

8. No provision was made to attach the cystoscope to the firm bench as necessary to pass the instrument.

Modification: A separate clip was devised for the attachment of a filiform to the cystoscope.

In conclusion the author says: The advantages of the combination instruments would seem to be that it fits all the requirements and carries a more

tissue was demonstrated. Venous sinuses surround the ejaculatory ducts. There is a large artery situated between the ducts and posterior to them. The epithelium of the ejaculatory duct was transitional becoming columnar as it reached the prostate gland.

The author concludes that the seminal vesicles are distended when fluid is injected through the vas deferens because

1. The normal resistance of the walls of the ejaculatory duct of which the lumen becomes gradually smaller as they approach the urethral floor causes the liquids to flow toward the seminal vesicles.

2. A large muscular organ (the prostate) surrounds the ejaculatory ducts and offers resistance to their distention.

3. The ejaculatory duct has no musculature of its own to overcome the resistance of the prostatic musculature.

4. The lateral wall of the duct of the seminal vesicle contains elastic tissue which is less resistant to distention than muscle tissue.

The seminal vesicles are distended when solutions are injected by way of the ejaculatory duct prior to the appearance of any of the solution in the vas deferens because

1. The lumen of the seminal vesicle is a direct continuation of the ejaculatory duct.

2. The lateral wall of the duct of the seminal vesicle contains elastic tissue and is therefore less resistant and more readily distended than the ampulla of the vas deferens.

3. The lumen of the ampulla of the vas is surrounded by thick muscle walls and its orifice opens superiorly into the ejaculatory duct.

4. The lumen of the ampulla contains several valve-like protecting folds within its lumen which tend to obstruct the entrance of fluid into the vas deferens.

J. EDWIN K. KEMP, M.D.

#### Lang R. E. The Significance of the Roentgen Procedure in the Diagnosis and Control of the Treatment of Urethral Discharges. *U. S. C. M. R.* 97, 92.

In the author's technique for urethrography a Jantc syringe with a capacity of from 100 to 150 c.c. and a 1 per cent iodipin solution are used. If the entire urethra is to be studied from 20 to 50 c.c. of the iodipin is required but for an investigation of only the anterior portion 10 or 12 c.c. is sufficient.

In the examination of the entire urethra the position of the patient is very important. To prevent protrusion of the penile bulbosa from overlapping each other the patient lying on his back must be turned to a position of 15 to 20 degrees with the leg under the thigh strongly abducted and the thigh abducted and the upper leg held straight with the thigh abducted.

The position is not necessary for a study of the anterior urethra.

The urethrograms will reveal strictures, a diverticulum of the penile bulbous pocket like dilatations and diverticula caused by multiple strictures, congenital deformity of the urethra and bladder, false passages, tumors and paraurethral and perineurethral abscesses. To study the progress of a case repeated urethrograms may be made.

Urethrography is a valuable adjunct to urethroscopy and the use of sounds but should not be substituted for them. CLAUDE D. PICKRELL, M.D.

### GENITAL ORGANS

Thomas B. A. Pre-Operative Care of Patients with Prostatic Obstructions. *J. U. I.* 1027, 1187.

Kinney W. H. Postoperative Care of Patients After Prostatectomy. *J. U. I.* 107, 1193.

THOMAS states that the pre-operative treatment of patients with prostatic obstruction should include bladder drainage and renal decompression, physical and drug therapy, the determination of operability and the determination of the best method of operation for the particular case.

Drainage of the bladder is best accomplished by catheterization or cystostomy. Under ordinary conditions cystostomy is preferable, especially in cases of stone, marked cystitis, tumor, diverticulum or contraction of the urethra. When simple drainage and decompression do not suffice, diuretics, urinary antiseptics and cardiac stimulants are required. The bowels must be kept open and from 80 to 100 oz. of water given a day with caffeine sodium benzoate and digitalis.

Age alone is never a contra-indication to operation. The chief factor determining operability is the general condition. Elimination tests, determinations of the blood urea nitrogen and tests for hyperglycemia are important. If the blood urea nitrogen is over 30 mgm. prostatectomy is contra-indicated.

Myocarditis or marked arterio-sclerosis may contra-indicate operation. The blood pressure is of importance. A blood pressure that is too low is as unfavorable as a blood pressure that is too high. If the systolic pressure is 110 the diastolic must be 60 or over. If the diastolic is less than 60 the systolic must be over 110. Other wise operation is contra-indicated. Digitalis may control the condition.

The choice of operation requires careful discrimination and cystoscopic examination.

KINNEY states that the care given after prostatectomy is just as important as the pre-operative care. Postoperative shock is often prevented by the use of local anesthesia and care in the operation. KINNEY recommends hypothermia immediately up to 2,000 c.c. daily if compensation is good. Hemorrhage must be prevented by careful ligation and packing. If necessary transfusion may be done. To prevent infection the wound must be kept scrupulously clean. Kinney removes the packing carefully on the second or third day, irrigates daily with boric acid and instills 1 per cent mercuriochrome or 10 per cent argyrol.





inflammatory process Ball cites four cases treated for cystitis in which the appendix was the factor responsible for the infection and it was clearly demonstrated that the local attachment of a part of the intestine to the urinary tract was a cause of chronic persistent or recurrent infection presumably due to direct transmission The abdominal ureter and renal pelvis may become involved in this disease

Simple intestinal fistulae are unlikely to cause many cases of infection of the urinary tract but diverticulitis and colonic neoplasm usually bring about infection by direct involvement of the urinary passages in their disease processes

Of fifty cases of carcinoma of the colon and rectum none was responsible for a hematogenous infection

Of fifty eight cases of colitis urinary lesions were found in only three

A study of 116 cases of salpingitis showed that the frequency with which lesions of the urinary tract are associated with inflammation of the tubes is almost the same as the frequency of their association with disease of the appendix

GILBERT J THOMAS M D

Scholl A J Histology and Mortality in Tumors of the Prostate Bladder and Kidney *C life & West Med* 1917 xxvi 185

There are two types of prostatic carcinoma The less malignant type correspond closely to the normal structure of the prostate The other is made up of irregular masses of cells with no differentiation

The common epithelial tumors of the bladder may also be divided into two primary groups the malignant papillomata and the solid carcinomata The first group which is made up of tumors retaining to a considerable extent the characteristics of the bladder mucosa and the benign papillomata is less malignant than the solid carcinomata

Tumors of the kidney are divided primarily into the papillary adenocarcinoma and the alveolar carcinoma groups The papillary adenocarcinoma correspond to the so-called hypernephroma group and are of several different types with corresponding degrees of malignancy The alveolar group a small one the tumor which is highly malignant tend to reproduce the tubules of the adult kidney

The difficulty or ease of the removal of a tumor is a most important factor in the prognosis regarding the malignancy

LOUI GRAY M D

The time required for convalescence is usually in inverse proportion to the pre-operative treatment given. When acidosis occurs sodium bicarbonate should be added to the salt solution used. Hypostatic congestion may be prevented by moving the patient about and getting him up by the fifth day. If the tongue is dry purgatives, forced fluids and nitroglycerine are indicated. If the heart is weak digitalis should be given. The treatment of epididymitis requires support of the scrotum and the application of cold compresses and 5 per cent guaiacol ointment. The bladder tone may be brought back to normal by irrigating with mild silver nitrate solution.

BENJAMIN F. ROLLER, M.D.

Meyer H. W. Undescended Testicle with Special Reference to Torek's Method of Orchidopexy. *U. S. G. & O. B. J.* 1917, 21, 53.

The etiology of undescended and ectopic testicle has not yet been definitely settled. Many theories have been advanced. The most important are those concerning the function of the chorda gubernaculi, the length of the spermatic vessels, the size of the inguinal canal, the size of the scrotum and the posture of the child in the uterus.

The histological changes point to the fact that spermatogenic cells are present and function in about 10 per cent of cases. The interstitial cells which have to do with the development of the secondary sexual characteristics are always abundantly present. All these findings are almost constant in undescended testicles and should always be saved.

Secondary complications occur. Malignant degeneration is not as frequent as is generally supposed and fear of it does not warrant orchidectomy. Chronic inflammation, a potential or real concomitant hernia, practically always present, torsion of the spermatic cord and strangulation of the testicle are so common that surgical interference is always indicated.

Pain is the most frequent symptom. Symptoms may be produced also by complications. In adults psychic disturbances may occur on account of the depression that comes from the knowledge and fear of abnormal sexuality.

Operation is always indicated if only to cure the hernia. Orchidopexy should be performed at the same time. Castration is contra-indicated.

The best time to operate is before puberty, between the eighth and tenth years of age, in cases of unilateral undescended testicle and earlier in bilateral cases. The method described places the testicle where it is free from undue trauma, gives it the best chance of development and function.

To check method of orchidopexy is the best means of curing the hernia and placing the testicle in its normal position. It maintains a full blood supply to the testicle which comes to lie in the bottom of a well formed scrotal sac. It is just as applicable to bilateral as to unilateral cases.

C. TRAVIS SPENCER, M.D.

## MISCELLANEOUS

Gibbalth W. W. and Ridd H. J. R. The Radiological Examination of the Urinary Tract. *U. R. & C. J.* 1917, 21, 721.

For roentgenography of the urethra the authors recommend the technique used by Fohnstam and Kane. This has not been used by them however as they have not found it necessary.

Cystograms are used to demonstrate strictures. They are made also in cases in which cystoscopic examination is impossible or impracticable. A solution of 12.5 per cent sodium iodide is used.

A ureterogram is made of only one side at a time. The catheter is passed for a distance of about 25 cm. which brings it to the ureteropelvic junction. The first picture is made after collection of the specimen. The catheter is then withdrawn to a point just above the ureterovesical angle, the 12.5 per cent solution of sodium iodide carefully injected and the second film made. Kinks strictures dilations calculi and the relation of the shadow to other abdominal shadows can be demonstrated.

The technique of pyelography is similar to that of uroterography except that the second film is made before the catheter is withdrawn. Hydronephrosis, tumor of the pelvis or kidney substance, nephroptosis, calculi and developmental abnormalities are revealed.

CLAUDE D. PIERCE, M.D.

Ball W. G. Some Anatomical Factors in Urinary Infections. *P. R. & S. J.* 1917, 9, 721.

Ball raises the questions as to whether infections ever persist in a normal urinary tract and whether in the absence of obvious lesions of the tract it is not correct to assume that some extralcal cause is present. He believes that such infections are often caused by direct contact of the urinary passages with infectious lesions of the neighboring structures.

Of a series of 200 consecutive bacteriological investigations of infective processes occurring in the urinary passages 63 per cent showed some pre-existing abnormality. In a large number of cases there was a dilatation of the urinary passages above the site of the lesions, a fact supporting the theory that dilatation of the urinary passages favors the occurrence of infective processes by providing a suitable field for bacteria or by lowering the resistance of the kidney to infection. Thus the tissues of the kidney may become so altered as to permit the transmigration of bacteria which regulate in the blood stream.

The frequency with which alimentary bacteria find their way into the urinary passages is suggested by the fact that Ball has collected a large number of cases in which urinary symptoms and infections were dependent upon an anatomical relationship between the bowel and the urinary tract.

It is so all the more probable that in the majority of cases of appendicitis some part of the urinary tract must come into very close contact with the

such tumors are considered benign growths. Blood good has reported forty seven cases and Coley fifty cases without metastasis. Codman states that in over 100 cases of giant-cell tumors which have been registered there was not one case of true metastasis.

The first case reported by the author was a case of true giant-cell tumor in the region of the left knee. Pulmonary metastases developed and the patient died. In the second case there was a giant cell tumor in the region of the left knee which broke into the joint cavity.

The first case represented the type of true giant cell tumor which undergoes malignant change following mild operative interference and trauma while the second represented the borderline aggressive type of giant cell tumor which is more suggestive of malignancy clinically and roentgenologically although it is benign microscopically.

LEONARD S. KELLER, M.D.

Snyder R. C. and Fineman S. A. Clinical and Roentgenological Study of High Colonic Irrigation as Used in the Therapy of Subacute and Chronic Arthritis. *Am J Surg* 1931, 9.

The value of various enemas and irrigations in cleansing the colon of barium residues was tested in 235 cases. The residues were the fifteen hour residue following the ingestion of 1 lb. of barium and the amount of barium left in the colon following the evacuation of a standard mucilaginous barium enema.

Soapsuds enemas (2 qts) were found most effective. However in 64 per cent of constipated individuals and in 36 per cent of patients without a history of constipation the soap suds enema failed to cleanse the colon completely. In many cases in which the enemas failed irrigations succeeded.

In fifteen consecutive attempts the tube was passed beyond the sigmoid thirteen times. The hepatic flexure was reached twice. That the procedure is not especially dangerous when it is used by experienced persons working under ideal conditions and aided and forewarned by previous roentgenological study is shown by the fact that 2000 such irrigations have been carried out without a mishap.

Since the addition of this form of treatment to the old well known therapy of arthritis the clinical results in the author's cases have been definitely improved. C. R. F. H. HEACOCK, M.D.

Nachlas I. W. Studies on the Blood Calcium and Phosphorus in Arthritis. *J Bone Joint Surg* 1931, 9.

Because there is one type of arthritis characterized particularly by bony overgrowth about the joint. Nachlas made studies upon the phosphorus and calcium content of the blood the latter being presumably the medium for the transportation of calcium and phosphorus to the bony tissues. The chemical structure of bone has been fairly well

established. The salt  $\text{Ca}_3(\text{PO}_4)_2$  constitutes about 85 per cent of the inorganic elements.

By microchemical methods it has been possible to establish the level of the element in the normal adult as 9.5 to 10.5 mgm of calcium and 3 to 4 mgm of phosphorus per 100 ccm of blood.

The author determined the serum content of calcium and phosphorus in thirty seven cases of arthritis which were classified into two groups.

1. Rheumatoid arthritis in which the most marked change occurred primarily in the soft tissues and the periarticular synovial tissues underwent thickening with hypertrophy of the synovial fringe and ultimately all of the constituent elements of the joint become involved by a process of atrophy.

2. Osteoarthritis in which the primary changes occur in the cartilaginous and bony structures with undue enlargement or hypertrophy with the formation of osteophyte outgrowths.

In these investigations the author was unable to verify the observations of those who have reported an abnormality in the calcium metabolism in arthritis deformans. He states moreover that no reliable distinction was offered by his analyses for the separation of rheumatoid arthritis from osteoarthritis. K. DIETZ, LENER, M.D.

Silber D. The Role of the Capsule in Joint Constrictures with Especial Reference to Subperiosteal Paralysis. *J Bone Joint Surg* 1931, 9.

In the anatomical sense the joint capsule consists of the synovial membrane and enough fibrous tissue to support it with occasional accessory ligaments such as the ligament and the ligament of Winslow. From the surgical standpoint however the pericapsular tissues must be considered as integral parts of the capsule. They increase in thickness and strength and are a common site of the inflammatory changes which lead to contracture. The most important structures are tendon fibers, fascial expansions, muscle attachments and cartilage reinforcements. The surgical capsule is stronger on the flexor than the extensor aspect of a joint and when cartilage is present it is attached in the concavity of the joint.

In simple postural deformities the effect of structural adaptation and growth may give rise to disjuncture of structures on the contracted side. In cases with trauma and hemorrhage and overlong fixation of joint fractures in a fully flexed or fully extended position there are apt to be capsular contractures. Low grade inflammatory processes such as the proliferative type of chronic arthritis are apt to result in similar deformities. In cases with effusion and in the osteoarthritic type this is less likely. Very resistant contractures may occur as the result of trophic changes following nerve injury or the ligation of larger arteries to extremities.

The capsule is eventually responsible for soft tissue contractures when the tendons and muscles on the contracted side are not unduly tight and when

# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Johnson R. W. J. A Physiological Study of the Blood Supply of the Daphnia J. B. & J. 1927 133

In studies of the extent of the vascular tree of the nutrient artery and the efficiency of its anastomotic twigs the perosteum was stripped from the shaft of the bone and the medullary cavity blocked off at the metaphysis with wax plugs to cut off the blood supply.

The extent and anastomosis of the metaphyseal blood supply was studied by stripping the perosteum up rupturing the nutrient artery and blocking off the medullary canal with wax plugs inserted through a drilled hole at each end of the diaphysis.

The experiments indicate that the nutrient vessels preserve the life of the entire medulla and supply the inner half of the cortex. Active repair takes place when the nutrient vessel alone is intact. The metaphyseal vessels preserve the life of the medulla and the inner half of the cortex but repair is not as active as in the controls except close to the metaphyseal end being notably delayed in the middle region of the shaft.

The periosteal system does not normally supply more than the outer half of the cortex and cannot supply an effective collateral circulation to the medulla of the diaphysis in less than four weeks. The periosteal repair is relatively poor in the healing of cortical defect. In the shaft of the bone the nutrient vessels are the first metaphyseals next and the periosteal system last in importance.

This knowledge will help to solve the problems of nonunion, delayed union, multiple bone transplants, and acute osteomyelitis and kindred diseases. K. W. S. R. & M. D.

Holmes G. W. Bone Tumors Their Classification and Röntgen Appearance J. B. & J. 1927 133

Up to the present time the danger in the treatment of bone tumors has been due to too radical operations on benign lesions. An accurate diagnosis should be made before surgery is considered. Lwing, Bloodgood, Codman, and others of experience in this field place the roentgenogram among the most important of diagnostic aids. The roentgen examination should include not only the lesions of the bone involved but also views of other bones and of the lungs.

Beneath the other than primary tumors usually occur as multiple lesions crossing articular and the valving joints in the proliferating expansion of the bony shell. Benign tumors are rarely destructive

or proliferative. Primary malignant bone tumors with the exception of myeloma and Ewing's tumor are single lesions. They frequently show new bone laid down at right angle to the shaft. In the hands and feet they are extremely rare.

Osteoma and osteochondroma are true bone tumors but they usually grow from a pedicle on the cortex and never invade or destroy bone.

Enchondromata are most common in the fingers and toes. One of their chief characteristics is a regular bulging and thinning of the cortex. They may be mistaken for giant-cell tumors.

Giant cell tumors are usually single central lesions near the epiphyses of long bones or the jaw. They tend to grow equally in all directions causing expansion of the cortex but rarely breaking it. Their growth is slow. They do not cross cartilage invade soft tissues or metastasize. The shadow shows interruptions made by trabeculae.

Bone cysts occur in long bones and are characterized by oval areas of rarefaction with few or no trabeculae.

Osteogenic sarcomata occur in the shaft of long bone as single lesions. They generally appear before the thirtieth year of age. They may be osteoblastic, osteolytic or both. They break through the cortex and invade the soft tissues but do not cross cartilage or involve joints. There are four main types: (1) the fibrocellular which begins on the periosteum and builds up ossification in ray formation; (2) the telangiectatic type a very vascular and malignant form which arises in the medulla and metastasizes early; (3) the sclerosing type which forms dense, bony like bone throwing a cotton like shadow on the film; and (4) the undifferentiated entirely steely type in which the film shows loss of substance but no bone formation. Ewing's tumor is similar to an osteogenic sarcoma but is situated farther from the ends of long bones and causes more localized destruction of the cortex and more periosteal new bone formation. It responds more readily to radiation than other bone tumors.

Myeloma is of low growth and occurs most frequently in the marrow of flat bones and after the fortieth year of age. It causes thinning of the cortex and spontaneous fracture. The roentgenogram resembles that of metastatic carcinoma but the areas are finer and sparser outline. These are always multiple. W. J. C. & M. D.

Chatterton G. C. and Fligstad A. E. Peulster B. H. J. of Giant Cell Tumors J. B. & J. 1927 133

The authors report on cases of giant cell tumors which sometimes metastasize in spite of the fact that

He believes that free tendon grafts inserted to bridge a defect in the tendon continue to live as such and that it is safe to begin active motion in these cases at about the tenth day while retentive apparatus can be dispensed with on the twenty fifth day. He states that after tenorrhaphy the return of function is dependent upon several factors the most important being the breaking away of the tendon from its surrounding tendon sheath but the final outcome may not be evident for three or four months after the operation.

PAUL C. COLONY, M.D.

**Flé ez and Lecéne** A Case of Spontaneous Intracapsular Rupture of the Tendon of the Long Head of the Biceps Brachii (U cas d rupt p p tant nt apula e fu t ndon d l l nne po t d bi ps b achial) *B il et mém* S c t d h 9 6 l 10

In the examination of a 76 year-old woman for an old luxation of the left shoulder an intracapsular rupture of the tendon of the long head of the right biceps was found. The patient was unaware of the latter lesion and could recall no traumatism to the right arm. However she had an arthritis sicca of the right shoulder a condition in which rupture of the long tendon is relatively common and occurs without trauma. The tendon is thought to be gradually filed through by the process of the dry arthritis finally rupturing spontaneously.

This phenomenon is seen in other intracapsular tendon in the presence of arthritis sicca and is often accompanied by degenerative changes in the tendon. Spontaneous rupture of the long tendon of the biceps requires no treatment as it usually occurs in old persons who are not inconvenienced by the detachment. Traumatic rupture of this tendon however requires operative therapy in the form of reinsertion, resection or fixation of the tendon.

LEO M. ZIMMERMAN, M.D.

**Buchman, J.** Osteochondritis of the Vertebrae Body. *J B & J* 15 9 7 1 55

The author discusses a new disease entity described by Calvé as a localized affection of the spine suggesting osteochondritis of the vertebral body with the clinical aspects of Pott's disease. The three cases on record to date were those of children 2, 5 and 7 years of age. None gave a history of serious injury. The condition was characterized by an insidious onset, fatigue, pain, stiffness of the back and knuckle formation. In one case there were night cries. Roentgen ray examination revealed shortening of the vertical diameter of one of the vertebrae.

Buchman reports two new cases, one that of a child 15 years and the other that of a child of 11 years. The child 11 years of age was suffering from a vertebral epiphysitis which apparently followed an osteochondritis of the vertebral body.

The differentiation between osteochondritis of the centrum and vertebral epiphysitis is based on the

ossification processes of the vertebrae. The primary centers are all present by the fourth month of intra uterine life. Among the secondary centers the superior and inferior epiphyses of the body do not appear until the eleventh or twelfth year. In the five cases referred to the age incidence of osteochondritis of the centrum was under 7 years. Vertebral epiphysitis is rarely seen before the eleventh year.

The author calls attention to the parallelism that seems to exist between osteochondritis of the centrum and vertebral epiphysitis. Legg Calvé Perthes disease, Koehler's disease, Osgood Schlatter disease, coxa vara, cervicalis and all the other forms of osteochondritis that have been recently described. Osteochondritis of the centrum and vertebral epiphysitis are undoubtedly parallel conditions in different periods of growth and different foci.

The various theories as to the etiology of osteochondritis are discussed from the standpoint of the other better known conditions. The only conclusion that can be drawn is that of Schanz, viz that the pathological picture is not specific but a response to the increased static demand over the static capacity. This is in accordance with Whitman's contentions regarding coxa vara, cervicalis associated with Froehlich's syndrome, viz that the etiological factor is not the endocrine dyscrasia but the increased load thrown upon a weakened epiphysis. Pathological conditions that may cause a diminution of the capacity to bear stress and strain are disturbances of the calcium and phosphorus metabolism such as occur in infantile rickets, late rickets, osteomalacia and the conditions resulting from the hunger blockade of the World War. According to the author's observation the most common causative factor producing the type of osteochondritis under consideration is the physiological weakness incidental to rapid growth.

Roentgenologically osteochondritis of the centrum is characterized by irregularity of the vertebral outlines and flattening and wedging of the vertebrae followed by a stage of restitution when the vertebral outlines appear dense and sclerosed. Deformity of the vertebral bodies is the final result. The inter vertebral spaces are widened in proportion to the thinning of the vertebral bodies.

All of the treated cases have done well under treatment by recumbency and the application of a plaster of Paris jacket. The remaining deformity does not interfere with activity.

ROBERT C. LOVERGAY, M.D.

**Ghormley, R. A.** Heliotherapy in Relation to the Treatment of Tube Cystosis of the Spine in Children. *J Am M* 15 19 7 1533 259

Tuberculosis of the spine is treated at the New England Peabody Home for Crippled Children in Newton Center, Massachusetts by fixation in a plaster jacket applied on a Goldthwaite frame. The jacket is bivalved. The patient lies alternately in either half of the jacket while sunlight or mercury vapor quartz lamp treatment is given.

relaxation of taut muscles gives no increase in mobility. The limitations of careful manipulation and gradual correction in such cases have led to occasional division of the capsule.

Subperiosteal separation of the contracted portion of the capsule is offered as a superior method. It is less damaging and yet more comprehensive in its effect in fibrous contraction. It preserves the continuity of the capsule better than simple capsulotomy and may often be performed subcutaneously. An osteotomy or tenotomy which has been cut off at the middle and resharpened on the ends and both sides is used to separate the capsule. After the skin has been incised with an ordinary sterilized knife on the side of the joint and closed, the joint line on the side of the excised segment the capsule is split to the bone from the joint line to its insertion. With the elevator the attachment of the capsule is released along with the periosteum from the joint line outward. It may be necessary to make an incision on one side of the joint and to complete the separation subcutaneously on the other side. Full correction may not be secured at once, but the contracture will much more easily lend itself to gradual correction.

Contractures of the fingers, metacarpophalangeal joints, wrists, elbows, ankle, and knee have been corrected by this method.

It is thought that the procedure will be especially valuable for the improvement of function of hands crippled by any of the various affects in class of arthritis deformans. At the wrist the capsule should not be divided on the side of the convex segment as is the rule elsewhere, but instead the two main accessory ligaments should be free from the radius and ulna.

W. I. BAKER, MD

Wolk W. F.: Regeneration of the Synovial Membrane Following Typical Synovectomy. *J. H. C. J.* 15: 97, 67.

The author reports further experimental evidence that there is regeneration of the synovial membrane following synovectomy. The experiments were performed on dogs ranging in age from 2 or 3 months to several years. Twenty-four knee joints were operated upon. The split patella approach was used. The synovial membrane of the anterior surface of the femur, that from the anterior pouch lateral to the condyles, and the infrapatellar fat pad were removed. The operation was followed by a moderate reaction with complete return of function to the nonoperated joints after fourteen days.

Following the administration of lethal ether the joints were examined at periods ranging from one to one hundred and eighty days. X-ray studies made after injections of sodium iodide into the capsule showed after ten days only a slight variation from the normal in size and contour. Primary wound healing was the rule and function was normal in the dogs allowed to live beyond the fourth week. The joint fluid resumed its normal character after ten days.

The macroscopic changes in the joint appeared to progress in an orderly manner and following the

absorption of the clot and the development of fibrin the denuded areas were soon covered by a translucent membrane. From the third to the seventh day both fine and coarse adhesions were found. The former were abundant in time, but the latter persisted and were the direct cause of a sacculization of the upper part of the pouch into the lateral portions. In eleven cases fringes of fibrin, verbing the articular surfaces. In about one half of the cases there was minor cartilage absorption probably due to the trauma of the operation. Villus formation was noted in three of twenty-one joints examined.

By the fourth week a small zone of adipose tissue made its appearance in the central area of the dense fibrous pad which replaced the excised infrapatellar fat pad and the incisions extended upward to the intercondylar notch. The adhesions persisted.

At the end of the fourth week the deeper fibroblasts which appeared in the fibrin were shrinking in size and rapidly assuming the characteristics of normal fibrous tissue cells. The surface layer was smooth, the cells being smaller and flattened resembling more closely the cells of normal synovial membrane.

At the hundred and eighty day the synovial membrane was practically indistinguishable from that of the normal animal.

The changes noted prior to the fourth week were those of regeneration of the surgically excised synovial membrane. Subsequently the changes were those of cell aging and maturity into inactive fibrous tissue, the phase of hyperplasia having repaired the injury further cell growth was checked.

These findings indicate that synovial membrane regenerates after typical synovectomy and the regenerated pouch closely simulates the normal in size, contour, histological structure and function.

K. BERT C. LOZAN, MD

Ga-lock J. H.: The Repair Processes in Wounds of Tendon and in Tendon Graft. *A. J. S.* 19: 1, 9.

By experiments on dogs, Carlock attempted to determine when it is safe to begin motion in a dog's (orthopedic). The tendon mechanism in the dog most closely resembles that of man, is found in the anterior tibial group. Therefore this region was used in the experiments. In one group of experiments the tendons were divided and resutured by the Bunnell technique and the tendon sheath carefully repaired. The subcutaneous tissues and skin were then closed and the leg was immobilized in plaster of Paris. In another group of experiments the tendon was exposed, a portion about 2 cm in length was excised, and a free tendon graft taken from the other hind leg was inserted into the defect and sutured. The wound was then closed and the limb immobilized as in the other group.

Carlock concludes that it is safe to institute active motion on the fifth day after operation and to remove retention apparatus on the eighteenth day.

The author has applied one of these procedures in ten cases with very satisfactory results. After the operation the patient is kept in bed for the first six weeks. He is then allowed to sit up for one week. By the end of the seventh week he is able to walk without external support.

IAUL C. COLONY M.D.

Dickson F. D. An Operation for Stabilizing Paralytic Hip. *J. B. & J. S. 12* 927 1917

In cases of instability of the hip joint due to paralysis of the gluteus maximus and medius resulting from anterior poliomyelitis, Dickson transplants the tensor fasciae femoris to the posterior superior spine of the ilium. He has performed this operation during the past five years with uniformly successful results.

With the patient lying on one side the skin incision is made from the anterior superior spine of the ilium posteriorly along the crest of the ilium to the posterior superior spine. Anteriorly it is prolonged downward onto the thigh for a distance of 4 in. and passed along the inner border of the tensor fasciae femoris (lateral). The skin and subcutaneous fat are then reflected to expose the fascia covering the tensor fasciae femoris and the gluteus medius and maximus.

In the next step the tensor fasciae femoris is separated from the sartorius and rectus femoris anteriorly for a distance of 4 in. and from the gluteus medius for a distance of 3 in. posteriorly, care being taken not to injure the nerve supply.

The tensor fasciae femoris is then freed from its origin at the crest of the ilium by chiseling off a shell of bone. The gluteus medius is lifted up and the severe insertion of the tensor fasciae femoris (lateral) is passed beneath it. The transplanted muscle should pass as far posteriorly as possible.

With the thigh strongly abducted the insertion of the tensor fasciae femoris will reach the posterior superior spine or its neighborhood. There it is securely fastened by No. 3 chromicized catgut to the crest of the ilium or a band of fascia attached to the crest of the ilium is turned up.

The posterior edge of the tensor fasciae femoris is firmly sutured as far posteriorly as possible to the under surface of the gluteus maximus. If the muscle is displaced as far posteriorly as it should be, it will pass over the anterior half of the greater trochanter in its new position. In the closure of the wound all dead pieces are obliterated. After the operation the limb is put up in plaster in extreme abduction.

After three or four weeks the cast is removed and daily exercises are given. After from six to eight weeks the limb is gradually allowed to come down from the abduction position and the patient allowed to use the extremity.

This operation has been performed in cases in which the tensor fasciae femoris had little or no power as well as in those in which it was not paralyzed. When paralysis is present voluntary extension is not obtained but the hip is stabilized.

It is used to give stability to the joint in the following conditions:

1. Flexion contraction of the hip with paralyzed glutei. In such cases it is sometimes advisable to perform a modified Soutter operation later.

2. Relaxed hip joint which subluxates when weight bearing is attempted.

3. Luxation of the hip due to paralysis. In such cases it is of value to hold the head of the femur in the acetabulum after reposition.

NORMAN C. BULLOCK M.D.

Hey Groves E. W. Some Contributions to the Reconstructive Surgery of the Hip. *B. & J. S. 12* 1927 486

This article deals exclusively with the author's experience in surgery of the hip joint following fracture of the femoral neck, ankylosis and congenital and paralytic dislocation.

After fracture of the femoral neck, non-union may follow because of (1) deficiency in the blood supply, (2) poor apposition of the fragments, (3) the interposition of the capsule or (4) an inhibitive influence of the synovial fluid. As the separate head retains living cells and is capable of resuming active life, it is not correct to say that it is dead. If the fragments are not put closely in contact at once after the fracture, the fresh surfaces soon become covered with capsule shreds and fibrous tissue which will prevent union. The part of the neck attached to the head rapidly becomes absorbed if it is not in contact with the distal fragment. There is no periosteum or endosteum to form callus which will bridge gaps as in shaft fractures.

The Whitman method has become almost standard yet in many cases it fails to obtain bony union. The failure is usually not appreciated until after the tedious confinement in the cast for three months.

A sure method of securing apposition of the fragments is the open operation with the use of the bone peg. A square peg  $\frac{1}{4}$  in. long and  $\frac{3}{16}$  in. thick is driven into a round drill hole through the trochanter and the center of the femoral neck so that it crosses the line of fracture and penetrates the femoral head up to the articular surface. This is done through a Smith-Petersen incision exposing the fragments to view. The leg is held in overhead suspension with slight flexion of the hip and traction of 10 lbs. After six weeks the patient walks with crutches and a caliper splint. After six months the splint and crutches are discarded. The bone peg is prepared in advance from beef bone and is just as efficient as an autogenous graft.

If the proximal fragment is short or the case is of long standing with atrophy of the neck, it is better to dislocate the head without cutting the round ligament and put the peg in through the head first thus pegging the head to the neck.

If this is done early before atrophy has occurred, bony union is assured and full function will be regained in six months.

There are three guides to the progress of the case namely

1. Accurate records of the deformity made with the use of Young's tracing machine every six weeks
2. The weight chart. The weight is recorded every month
3. Roentgenograms anterior, posterior and lateral made every four months

As soon as muscle spasm has subsided active exercises are begun to develop the extensor muscles of the spine and shoulder girdle.

Ambulatory treatment is begun gradually after one or two years' dependence upon the seventy and eighty degrees of the brace. The patient wears the bivalve jacket with straps.

In the author's opinion cases of tuberculous of the spine in childhood should never be treated as outpatient cases. DAVIS, H. L. & MALL, M. D.

Key, J. A. Some Diagnostic Problems in the Hip in Early Life. *J. Am. Med. Ass.* 1927 15: 1-5.

The evaluation of hip conditions in children is based on the history, the findings of the physical and X-ray examination, tuberculin and Wassermann reactions and studies of the blood, urine and feces. Exploratory arthroscopy for diagnosis is justifiable if the diagnosis is obscure and the patient has not been benefited by conservative treatment. LEVY, J. B. & KILGUS, R. M. D.

Legg, A. T. The End Results of Coxa Plana. *J. Bone & Jt. Surg.* 1927 1: 36.

Legg reports the end result of coxa plana in a series of forty cases with a duration of at least ten years. He states that it is possible to prognosticate the ultimate change in structure and to some extent the functional disability at an early stage but in certain cases the end result is not obtained until the epiphyseal union with the shaft.

In previous reports two of the types of end results in coxa plana were described—the mushroom and the cap types. In the mushroom type there is no marked atrophy or fragmentation of the epiphyseal bone center. In some cases the epiphysis may migrate to the great trochanter whereas in others it migrates very little. Abduction and lateral rotation is limited when the epiphysis is markedly migrated but if the migration is very little migration is maintained and may be normal in adult life. There is less shortening in this type than in the others. None of Legg's cases show more than 5 in of shortening.

The cap type shows marked variation in radiolucency in the epiphyseal bone center and the neck and the fragment of the epiphyseal bone center and marked shortening and running off of the upper angle of the neck. In some cases the epiphysis seems to be obliterated. The ultimate limitation of motion and shortening of the leg are generally considerable usually from 10 to 12 in. The duration of the process differs also in the two groups. The changes taking place in the mushroom type are much less

marked than those occurring in the other and the process reaches the final state sooner. Legg believes that in the cap type the ultimate stage is not reached until the epiphysis has united and at about the eighteenth year of age.

In the cases reviewed relief from weight bearing in no way affected the end result that is in those in which weight bearing was permitted the end results did not differ materially from those in which no weight bearing was allowed.

ROBERT C. LOZ, A. M. D.

## SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Willems, C. J. The End Results of Immediate Active Mobilization in the Treatment of Joint Injuries. *Acta Orthop.* 1927 4: 45.

Willems reports the end results of immediate active mobilization of joint injuries in twenty cases including fifteen knee joint injuries and five injuries of the elbow. Fifteen were not infected in five there was purulent arthritis. The treatment was described eight years ago.

Function has been maintained in all cases. In some the original bone injury cannot now be detected in the roentgenograms while in others especially those in which suppurative arthritis occurred there has been a large production of osteophytes. However even in the latter the mobility of the joint is little affected and the musculature has been retained.

In the non-infected cases the disability averages 3 per cent while in the infected cases it averages 22 per cent. Osteophytes are present in several of the cases in which the disability is reported 5 mil.

VILKIN, J. BERNK, A. M. D.

Wreden, R. R. Osteoplastic Support of the Spine. *Int. J. Orthop. Surg.* 1927 1: 35.

The author believes that after the serious perforations of the disc and external support in the form of a rest or brace is necessary. In Russia such a rest is often used that he has been led to seek a remedy by a new surgical method which gives both immobilization and support. He describes two types of operation which he calls the method of transverse support and the method of oblique support. The principle of the procedure is the transference of the trunk weight from the diseased vertebra to the pelvis by bony grafts. When the fourth or fifth lumbar vertebra is diseased these grafts are placed in two vertical grooves made between the lumbar and fused with the spinal processes of the diseased lumbar vertebra. When the disc is in the last thoracic or the first three lumbar vertebrae a Z-shaped incision is made over the affected area and after a groove has been made in the cost of the lumbar spinal processes are reflected downward and the two bony grafts are inserted until they cross beneath the spinal process forming a support.



the disappearance of all swelling which was usually between the seventh and tenth days after the operation. Every day the thumb screws on the extension pieces were turned until 2 in. of lengthening had been obtained care being taken to maintain the proper apposition and alignment of the fragments.

Union occurred in from eight to ten weeks after which a plaster mold including the foot, leg and thigh was applied.

In the six cases so treated the result was a failure in one. In the remaining five cases the lengthening obtained ranged from 1 to 1½ in. In none of the cases was there any evidence of nerve or circulatory disturbance. RICHARD S. REICH, M.D.

### FRACTURES AND DISLOCATIONS

Langworthy, M. Various Fractures. Practical Notes on Their Treatment. *The West Med* 19: 77.

The theory that reduction should be delayed until the subsidence of swelling should be abandoned. Nothing is gained by such delay either in facility of reduction or promptness of union.

In compound fractures the soft tissue wound and the fracture must be considered as two separate problems. Reduction should be accomplished early and fixation secured permanently. The question of drainage may then receive attention. No fixed rule can be laid down. Some slight puncture wounds may result in gas infection while wide lacerations may be sutured tight and closed by first intention. Complete closure after thorough debridement with the scissor gives primary healing in many cases.

The method of choice in reduction is manipulation with the least possible trauma under general anesthesia and fixation in a cast or rigid splint. The next best is adhesive traction and the third best is direct extension.

Chronic disability following compression fracture of the spine is due usually to inefficient treatment or the stopping of treatment too soon. Often the diagnosis is not made until several weeks after the injury either because of failure to make an X-ray examination or limitation of the roentgenograms to the anteroposterior view. If only one view of the spine is made the lateral view is better. It must be borne in mind that this fracture can occur with only slight injury.

In late cases with symptoms an ankylosis operation should be done on the spine if the patient is young or a brace applied if the patient is elderly. In fresh cases the patient should be kept on his back on a hyperextension frame for from six to eight weeks and then held with the spine hyperextended in a plaster jacket for several weeks longer.

In fractures of the surgical neck of the humerus the most satisfactory method is reduction by manipulation under general anesthesia and fixation in abduction in a cast. As a rule the more completely the area can be abducted and externally rotated the

better the result. Children remain in the cast for five or six weeks but in the cases of older persons motion must be begun in two or three weeks to prevent stiffness. The arm should be held in an abduction splint and let down gradually.

WILLIAM A. CLARK, M.D.

Henderson, M. S. The Open Treatment of Fractures. *Ill. os. M. J.* 1927: 1131.

Henderson reviews a series of cases covering five years. There were 270 cases of recent fracture and 387 of old fracture in the surgical group. Open operation was performed in 123 (45.5 per cent) of the cases of recent fracture. The distribution of the fractures is given in detail. The fractures most frequently subjected to the open method were fractures of the radius and ulna combined and those of the humerus, elbow, tibia and fibula, femur, knee and ankle. Those most often treated by the closed method were fractures of the wrist, hand, foot, clavicle and hip.

In general delay in reduction is responsible for more faulty settings than any other factor. Immediately after the fracture particularly if the patient is anesthetized and relaxed the end of bones can usually be freed from the muscle and properly engaged so that if proper fixation is provided the fracture site is in condition for the formation of healing callus. Fixation is essential; it may be provided in many ways and should be as absolute as possible for the time it is required. Traction is probably the greatest single aid to the reduction of fractures and may often be continued after reduction thereby aiding fixation.

Whenever possible a fracture should be reduced by the closed method. In the series of cases reviewed many of the patients treated by the open method were seen late. This was regrettable because if callus is interfered with during its formation the process of ossification may be slow in re-establishing itself. All of the soft parts were swollen, blood clots were undergoing organization and there was a tendency toward the formation of old callus. Under such conditions an open operation is generally necessary. On the other hand when a fracture is reduced at once chiefly by traction and with minimal trauma very little swelling ensues because anatomical reposition restores the normal tension of the muscles and blood vessels and prevents oozing with the formation of a hematoma.

The statistics reported do not clearly express the author's views on the relative merits of the open and closed methods. Some of the cases of fracture were referred because delay in the primary reduction which in many instances was unavoidable had resulted in unsatisfactory setting. The time favorable for the closed method had passed, the time for the open method had arrived and operation was necessary.

Too free use of metal, whether in the form of plates, screws or nails, has been justly condemned. Beef bone screws and plates are being used more

In cases of long standing the best procedure is the reconstructive operation devised by Whitman in which the loose head is removed and the stump of the neck placed in the acetabulum after the trochanter has been cut off and transplanted down on the shaft.

Bilateral ankylosis of the hips is an absolute indication for arthroplasty of one side. It is best to cut the capsule far up around the acetabulum. This serves two purposes. It releases the periarthritic tissues which may subsequently prevent motion and it furnishes a long flap which may be used to cover the fresh surface of the neck after removal of the head. In the authors hands the Murphy method for arthroplasty of the hip has always given poor results. It is a long severe operation followed by such tenderness that motion cannot be begun until too late to obtain a sufficient range of movement to justify the procedure. A better procedure consists in removing the head and thereby obtaining a smaller stump to put in the acetabulum thus insuring earlier and wider motion. A rounded headed ivory nail may serve as an artificial head when driven into the neck and made to fit securely. Baer's membrane of ethromized pigs bladder is well recommended.

In congenital dislocation of the hip before the fourth year of age open operation is usually unnecessary as the manipulative method will give good results in most cases. The only serious obstacle is the contracted capsule. It is obviously impossible to push the head of the femur medially in in diameter through the contracted lining of the capsule which is about 1 in in diameter. The capsule is completely torn or is crumpled up between the head and the socket.

In older children open operation is often necessary. When the capsule is cut longitudinally and the socket is exposed it may be found that the latter is too shallow to hold the head. One of three things may be then done. The hip may be put up in extreme abduction dependence being placed on the position to hold the head in the acetabulum and upon the subsequent weight bearing to deepen the socket. The socket may be deepened by burning it out. This destroys the cartilage and may result in ankylosis. The socket may be deepened by the formation of a shell on the upper rim by turning down a bone flap from the ilium. As this gives a rather meager narrow shelf the author has tried fastening a previously shaped ivory shelf above the acetabulum by bone screws. This sometimes acts as a bulky foreign body. More recently the ilium flap method has been improved to give wider shelf and is now employed as a rule.

To keep the head from adhering to the socket after the latter has been deepened by burning the author cuts the capsule around the rim of the acetabulum and folds it over the head. He then sutures it in this position on the sides several centimeters from over the pelvic rim through the center of the acetabulum and ties them to the capsule which cov-

ers the head. This serves to hold the head deep in the socket answering the purpose of a round ligament.

In adults with unilateral congenital dislocation permanent shortening of all muscles and deformity of the femoral head no attempt should be made at reduction. Instead it is best to do a simple subtrochanteric osteotomy and apply a cast with the limb in abduction. On solid fixation of the osteotomy the weight bearing line is improved so that the pelvis instead of being slung from the femoral head rests more above it and walking easier. In cases of bilateral dislocation in the adult the author reduces one side first by taking a section of the shaft so that the head can be brought down to the acetabulum. The socket is then deepened and the head placed in it. Later if desired the osteotomy is done on the other side.

Following infantile paralysis the gluteal muscles may be too weak to abduct the hip. The patient without gluteal power must be dependent upon crutches. As a substitute for the gluteal the author transplants the tibial band of the fascia lata. This muscle is exposed by a long lateral incision cut from its insertion near the condyle stripped up to the trochanter passed through a tunnel in the vastus externus muscle behind the trochanter and then upward along the line of the gluteal subcutaneous and out through a second incision in the lower lumbar region. The second incision the erector spinae muscle is exposed and is divided from its origin for about half of its thickness. The tibial band is then securely sutured to this half of the erector spinae. The transplanted muscle then forms a loop around the great trochanter and its contraction will abduct the thigh.

WILMA CLARK MD

Abbott L C. The Operative Management of the Tibia and Fibula. J B & J 15 2 97 1913

Encouraged by the results obtained by Putti in the operative gathering of the femur Abbott employed the same principle in lengthening both bones of the leg which had been shortened by poliomyelitis. A Thomas leg splint having been slipped over the leg the Achilles tendon as lengthened accordingly to the method and the fibula divided obliquely at the junction of the middle and lower third. Stems of pins were then inserted at the upper and lower ends of the shaft of the tibia. The middle third of the tibia was exposed and a sharp pointed instrument 4 in in length was drawn through the tibia. The pins were elevated by reversing the piece which turned the heel position into talipes equinovarus to the lateral borders of the tibia as split and the foot was maintained in position by means of a foot support.

After the completion of the operation the Thomas splint was elevated and left to the end of the operation. The drainage was removed after twenty-four hours but no attempt was made to lengthen the leg until after

extension method such as the one used in fractures of the shaft are satisfactory.

Fractures of the femoral neck must be treated on entirely different lines. Ordinary extension methods are useless. The method of wide abduction with fixation in plaster should be adopted as a routine measure. No special skill or operating facility is necessary but an appreciation of the anatomy of the fracture and familiarity with plaster-of-Paris technique are essential. The majority of cases so treated result in firm bony union irrespective of the patient's age. The insertion of a bone graft to afford additional fixation may produce more good results but as this is a highly specialized operation it cannot be of general application.

In cases of ununited fractures of the femoral neck operative treatment is advisable if the general condition will permit. The nature of the operation will depend upon the degree of absorption of the neck and the condition of the articular surfaces. Refreshing of the fractured surfaces with or without the insertion of a bone graft is indicated when the

anatomy of the hip joint can be restored. In other cases reconstructive operations will restore the stability to the joint and give relief from pain.

HUGH I. CONWELL M.D.

Gilcreest F. L. Fractures of the Ankle Joint and of the Lower End of the Tibia and Fibula  
*J. Am. Med. Ass.* 1927 LXXI 223

The object of treatment should be to expedite complete recovery of function by (1) proper alignment of the main fragments of the tibia so that the flat bearing surfaces of the tibia and astragalus are horizontal and parallel and (2) the application of sufficient traction with the foot at a right angle.

Reduction should be effected immediately under general anesthesia and the limb immobilized in plaster extending well up on the thigh. If this method proves ineffectual an open operation should be performed early.

When the patient begins to bear weight the fracture should be protected for a few weeks.

FLEVIN J. BERKMEISER M.D.

and more frequently as they are less irritating to the bone than metal and are entirely absorbed. The rate of absorption varies with the bone metabolism. Adequate external as well as internal fixation must be provided. Sometimes a carefully performed operation in which the bones are brought into perfect apposition and a beef bone plate is well applied may be rendered a complete failure by inadequate postoperative fixation.

Naffziger H C The Treatment of Fractures of the Spine with Cord Injury *J the Am Med* 1927 22 19

In the case of a patient I brought to the hospital with complete paraplegia following fracture of the spine one of the problems to be considered is that of making him comfortable and preventing bed sores. It is remarkable how quickly in such cases a vitalized area will develop extensive sloughing with the exposure of bare bone underneath. To diminish the risk of such lesions the patient should be placed on an air mattress.

To prevent cystitis in paralysis of the bladder it seems more expedient to let the bladder overflow even to the umbilicus with the hope that spontaneous leakage will occur than to do a suprapubic cystostomy or to catheterize. If catheterization cannot be avoided a small amount of antiseptic should be injected after the bladder has been emptied.

With roentgenograms in both planes it may be possible to show distortion of the spinal canal which will aid in the differentiation between complete cord retraction and cord compression.

If any results are obtained by surgical treatment in such cases it is necessary to decide rather early as to what is to be done. Animal experiments show that the coccygema which follows the primary injury reaches its maximum after from four to eight hours and that the superposition of this coccygema over the original injury is sometimes responsible for complete blocking. It therefore appears that exposure of the cord and relief of the coccygema by longitudinal section of the injured segments must be done within this time if the best results are to be expected.

A comparison of the spinal fluid pressure above and below the site of injury by spinal puncture and the use of the manometer may give information which will aid in the diagnosis when the clinical symptoms are not sufficiently clear. One manometer should be connected with a needle in a lumbar puncture and the other with a needle in the posterior cisterna. If the pressures are the same there is free circulation of the spinal fluid without blocking.

In the performance of a laminectomy the cord may appear normal on exposure but if the dura is opened slightly there may be an extrusion of tan colored cord substance indicating that the cord proper has been reduced to a pulp at that level. Laminectomy is advisable when block is present. The dura should be opened and when there is

complete paraplegia a small incision should be made also in the posterior columna.

Lesions below the first lumbar vertebra involve the cauda equina and are in the category of peripheral nerve lesions. Early operation in such cases is imperative because regeneration can take place in these filers if they are carefully approximated.

At the level of the twelfth dorsal vertebra a lesion may involve the nerve filaments which pass down from higher levels after emergence from the cord proper but before emergence from the vertebral foramina. Even when the cord is injured beyond repair at this level these nerve roots should be repaired because they come from the uninjured part of the cord higher up.

When patients with cord injuries are able to sit up they should not be treated as permanent invalids but should be encouraged to take up some occupation which they can do with their hands even though they must stay in a wheel chair.

WILLIAM V CLARK MD

Blitzort J M Fracture of the Femur *Am J S* 1927 28

The location of fractures of the femur and their treatment differ with the age of the patient. From birth up to the twelfth year of age fractures of the shaft are common and are well treated by traction. Between the ages of 15 and 40 years a good functional rather than a good anatomical result is the desideratum. In many cases traction may be relied upon but when the surgeon is experienced reduction is to be preferred in selected cases. After the age of 40 years operation should be reserved for excepted cases. In this age group fractures usually occur in the neck or trochanteric region and fixation in plaster is the treatment of choice. For fractures of the neck of the femur abduction according to Whitman's technique will be useful.

W P B AND MD

West W J Fractures of the Shaft of the Femur *J Am Med* 1927 22 9

Fractures of the shaft of the femur are generally being treated by the closed method with particular attention to union, length, alignment, apposition and the resulting condition of the adjacent joints.

The methods employed are the use of Buck's extension, Thomas splint, Hodgen's splint and the plaster cast.

West advocates the combined use of the plaster splint and a heavy weight traction especially in fractures above the lower third and in children between 6 and 18 years of age.

FLYCE J BECKWITH MD

Wells S L The Treatment and Results of Fractures of the Upper End of the Femur in Adults (Including the Shaft) *J Clin Surg* 1927 9 7 44

Fractures of the upper end of the femur excluding those of the neck proper unite readily. Ordinary

lymphocyte stimulated to overaction by different biological, chemical and physical agents.

The authors divide lesions of the lymphoid tissue into three main groups: the inflammatory, the neoplastic and conditions occupying an intermediate position between these two.

In acute and subacute lymphadenitis following coccous infections irradiation is probably second in importance to surgery. Only about 10 to 15 per cent of the skin unit dose is given. Rays of a short wave length are used. Rapid improvement and cure follow one treatment in about one third of the cases. In the others the treatments are repeated at weekly intervals. Rarely are more than three treatments required. To reduce the lymphic hyperplasia produced by long standing inflammatory processes (chronic lymphadenitis) larger doses are necessary. From 50 to 70 per cent of the skin unit dose is employed; this is not repeated within six weeks. The recession of the glands is slow but in no case has it been necessary to give more than two treatments.

In the treatment of tuberculous granulomata irradiation is preferable to all other methods. The dose is a small one (from 15 to 40 per cent). More than 40 per cent of the skin unit dose may be harmful. Rays of medium wave length are used for the superficial glands and rays of short wave length for the deep glands.

The tubercle bacillus may cause also a hyperplastic lymphadenitis in which the proliferation is mainly of the reticulo-endothelial cells. The histological structure in this condition is similar to that in Hodgkin's disease and in the roentgen treatment the same technique as that used for Hodgkin's disease is employed.

The roentgen treatment of other chronic inflammations of the lymph nodes such as actinomycosis is based on the same principles as that of tuberculosis.

According to the radiosensitivity the other lesions of the lymphoid tissue are divided into (1) proliferations of the lymphatic cell elements such as lymphatic leukaemia, pseudoleukaemia, leucosarcoma and lymphosarcoma and (2) proliferations of the reticulo-endothelial cell elements such as Hodgkin's disease, Hodgkin's sarcoma and reticulum cell sarcoma. This division corresponds to the histopathological distinctions. In the treatment of these conditions the irradiation should be as generalized as possible and rays of high penetrability (short wave lengths) should be used. In the first group from 60 to 70 per cent of the skin unit dose will suffice. In the second group the dose must be increased to 90 per cent.

Eleven cases of acute lymphatic leukaemia were treated but whatever the technique of exposure there was no evidence of any improvement. In chronic lymphatic leukaemia the treatment is influenced by the authors' belief that chronic lymphatic leukaemia is an involvement of the bone marrow by a lymphosarcomatous process (leuco-

sarcoma) and that the spleen exerts some protective action. To stimulate the protective action small doses of roentgen rays of long wave lengths are first used over the spleen. These are followed after from six to eight weeks by intensive destructive irradiation of short wave lengths directed to the involved areas—the lymph glands, abdominal organs and long bones—one area being treated a day with daily blood counts until a normal balance of lymphocytes is re-established. Occasional stimulative irradiations over the spleen will then usually keep the patient comfortable and able to perform his work for years. Sooner or later there develops a severe anaemia which does not respond to treatment.

The close relationship if not identity of pseudo-leukaemia with chronic lymphatic leukaemia indicates the same method of treatment for both conditions. Stimulative doses of irradiation over the spleen and destructive doses over the bone marrow are omitted because of the negative blood findings. Irradiation (40 to 50 per cent of short wave length rays) is given to the lymphatic system and the abdominal organs.

Whether a lymphosarcoma belongs to the localized or diffuse type is of only pathological interest. From the point of view of irradiation therapy they must be considered generalized. The irradiation is given over the entire lymphatic system and abdominal organs. As a rule a dose of 70 per cent of the skin unit dose will cause all of the tumors to disappear within ten days. Manifest lesions are re-irradiated within three months. Life is prolonged but apparently there are no cures.

Large round cell sarcoma or reticulum cell sarcoma resembles lymphosarcoma clinically but differs in its microscopic appearance and response to irradiation. It does not disappear within ten days and it requires a dose of 90 per cent of the skin unit dose. It has a greater tendency to recur than lymphosarcoma and its prognosis is less favorable.

The authors believe that Hodgkin's disease and Hodgkin's sarcoma are separate and distinct entities. The chief differential sign between these two and other lymphoid tumors is that Hodgkin's disease and Hodgkin's sarcoma never show transformation into anything resembling a typical monophasic lymphatic proliferative process. Although in Hodgkin's disease there is an early stage of lymphatic hyperplasia during which the condition is more radiosensitive and a cure may be obtained, proliferation of the reticulo-endothelial cells and their derivatives usually predominates when the patients present themselves for treatment. The greater resistance of these cases to irradiation makes the prognosis more grave and only palliation can be expected. Therefore smaller doses with less penetrating rays are indicated. The intensive roentgen therapy does not prolong the average duration of life and may be followed by severe blood changes.

Statistical results of the different methods of irradiation therapy are given which seem to favor the method employed by the authors.

CHARLES H. HEACOCK, M.D.

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

Eller W A A Spontaneous Investigation into the Cause of Pulmonary Embolism Following Operation in Suggested Predisposing Cause Results of the Investigation *La* 197 12 111

This study of the cause of pulmonary embolism is based on 205 cases following operation and twelve cases following fracture of the femur. The findings indicate that the most important factors favoring postoperative embolism are age and incision through the anterior abdominal wall and fracture of the femur.

Sufficient venous circulation requires free muscular action and well balanced respiration both costal and diaphragmatic. Measures should be directed toward the restoration of these functions as soon as possible after operation. *MERLE R. Hox M.D.*

Sattler J Aneurism After a Gunshot Injury of the External Iliac Artery (Aneurysma nach Schuss in die A. externa iliac) *G. St. St. St.* 1916 12 932

The author reports the case of a man 33 years of age who sustained a gunshot wound eleven years ago. The point of entrance of the bullet was behind and below the right gluteus. At the point of exit in the upper third of the thigh there is a star-shaped scar 35 cm. long. A complicated fracture of the femur has healed with 8 cm. of shortening. Care pointing to the course of the artery there can be felt 6 cm. below the point of exit a swelling with pulsation a thrill and typical auscultatory findings. The swelling and pulsation can be noted also on the abdominal wall up to within 5 cm. of the umbilicus.

Sattler surmises that an originally spurious traumatic aneurism has been changed into a true aneurism by the circulatory disturbances and progressive weakening of the wall of the injured artery. As the patient has been able to carry on his work with this condition for eleven years he does not advise operation but he has told the patient that immediate operation will be necessary if signs of an exacerbation are ever noted. *MAXIM (Z)*

Hare H A Wiring with Electrolysis in Sacral Aneurism *J. Am. M. Ass.* 1917 12 230

Hare reports 10 cases of aneurism of the thoracic aorta which were treated by wiring and electrolysis. Thirty-six such operations have been performed. The technique is described in detail and the necessity of using a particular platinum-gold-silver wire is emphasized. The chief advantage of this procedure is the marked relief of the pain it affords. If the wire is well placed at least a temporary arrest of the growth results. *J. FR. DOUGHERTY M.D.*

## BLOOD TRANSFUSION

Conner H M Gentian Violet and Acridol in Pernicious Anemia *M. J. - R.* 1917 12 9

Conner has been using gentian violet sometimes combined with acridol in a series of cases of pernicious anemia. In eighteen of them the treatment had been continued long enough to justify conclusions as to its efficacy. In all the treatment was begun from eleven to six months before the report was made. In some the treatment was cut short by adverse symptoms such as nausea and vomiting or by failure of the patient to co-operate.

The method of administration is described. The solubility of gentian violet in the presence of gastric or duodenal secretions was in estimated experimentally the dye was not precipitated. Other methods of treatment were carried out at the same time the patient remained in bed and a suitable diet was prescribed but liver was not given in large quantities.

The results which are given in tabular form indicate that in most cases improvement was maintained after the dismissal of the patient. In most cases it was marked and in some it was striking. The author is quite sensible of the hazards of judging the results of the treatment of pernicious anemia. In his series of cases the length of remission as if such they turn out to be was unusual even for pernicious anemia. He believes it may be more than a coincidence but is of the opinion that he is not justified in drawing conclusions from such a small series of cases.

## LYMPH VESSELS AND GLANDS

Evans W A and Leucocytin T Roentgen Rays Treatments of Lesions of the Lymphoid Tissue *Am. J. R. 15* 1917 12 4

Lymphatic elements and their derivatives are very sensitive to irradiation. This is true of both the circulating elements and those that make up the lymphoid centers. Small doses of the roentgen rays cause stimulation while large doses cause rapid destruction. Following destruction there is great regenerative and recuperative power. In order to understand the indications for the use of these it must be borne in mind that the rays are two biological reactions to the roentgen rays—the direct destructive action on the lymphocyte and the indirect reaction which may be called the immunization process. The two factors concerned in this process are (1) the antibodies of the organism produced or stimulated by the action of substances liberated from destroyed pathological cells and (2) the

# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

Lasch F and Neumayer K. The Resorption of Calcium After Its Oral Administration (Ueber die Resorption von Calcium bei peroraler Verabreichung) *Bism. Ztsch.* 1936 1xx 333

In order to determine whether and under what conditions calcium is absorbed from the gastrointestinal tract the authors carried out feeding experiments on carnivora (cats and dogs) and a few human beings. In all cases the calcium content of the blood serum was first determined under fasting conditions. A measured amount of calcium was then administered and determinations of the blood calcium were again made. The technique of de Waaad was used.

In all of the experiments there was an increase in the calcium in the blood. The maximal increase was reached after from thirty to sixty minutes and the low point was reached after about seven hours.

Boeck (G)

Mason F H. The Preoperative Preparation of the Diabetic Patient with a Discussion of So Called Diabetic Gangrene. *Cd. W. J.* 1937 3

Most diabetics who develop surgical complications peculiar to their diabetic state may be classified in one of two groups: (1) young persons who fail to live up to a strict dietetic régime and (2) persons over 50 years of age who have a low grade diabetic condition of at least several years standing which has never been considered serious and those who break their diet thereby allowing themselves to have a persistent hyperglycemia. Unfortunately the majority of the major surgical complications develop in patients of the first type in Group 2 and in these the most important complication is gangrene.

On the day of the operation the diabetic patient should have a good fluid balance, some glycogen reserve, no ketosis and an approximately normal blood sugar. Mason believes that immediately preceding the operation it is wise to administer an additional 10 units of insulin.

The anæsthetic employed is of considerable importance. In Mason's opinion chloroform is to be avoided always and ether if possible. Nitrous oxide and oxygen or a local anæsthetic is best. Following ether anæsthesia in a case of diabetes 5 per cent carbon dioxide in oxygen or air should be inhaled until by the increased pulmonary ventilation all of the ether has been removed from the tissues.

The postoperative complication of vomiting is especially to be guarded against. If nausea persists

gastric lavage should be done before vomiting begins. When vomiting is once well established it causes rapid dehydration, converting a mild ketosis into a severe one. The postoperative diet should be gauged according to the carbohydrate tolerance of the patient. At first it should be a fluid or a soft diet.

It is the general opinion today that the nature of the arterial alteration in diabetic gangrene is the same as that in arterio-sclerotic gangrene. Insulin *per se* will not alter the vascular change. By strict control of the diabetic state and daily attention to the local condition a great deal can be accomplished and many limbs saved. Since the introduction of the quartz mercury vapor lamp for local exposures better results have been obtained.

JACOB S GROVE M.D.

MacLean H. The Use of Insulin in Surgical Operations. *Proc. Roy. Soc. Med. Lond.* 1937 309

The author gives a detailed account of the physiological chemistry of acidosis according to the work of Van Slyke. He believes that ketosis is the condition that must be combated in patients coming to operation. The chief conditions leading to the development of ketosis are diabetes, starvation, anæsthesia and surgical shock. In a normal person the ketone bodies are successfully broken down during metabolism, whereas in the conditions mentioned they are broken down with difficulty. When the metabolism is normal, oxybutyric acid and diacetic acid will be oxidized if there is available sugar either stored or supplied.

The diabetic patient should not be starved before operation to render him sugar free since during the process of starvation there is a depletion of the glycogen reserve in the liver and tissues which favors ketosis. The degree of ketosis is determined by the presence of acetone in the urine. In the preoperative treatment insulin should be given until the urine is free from ketone bodies. It may be necessary to give additional sugar to prevent urinary reactions. The diet is of less importance so long as the patient receives enough sugar to keep up the glycogen reserve and enough insulin to control the ketosis. After operation ketosis develops more rapidly and insulin must be pushed and sugar given either by rectum or intravenously until the urine remains free from ketone bodies.

In the absence of diabetes a considerable degree of ketosis may be caused by anæsthesia, surgical shock and pre-operative starvation. Ketosis may be mistaken for surgical shock. In experiments upon himself Goldblatt produced a ketosis after forty hours of starvation. When he took 50 gm of

De Jardin A U: The Rationale of Radiotherapy in Hodgkin's Disease and Lympharcoma  
*Am J R & T* of 1927 x 1 232

The lymphoblastomata include a group of diseases of the lymphatic glands which resemble one another in many respects and have as their most prominent feature a generalized relatively painless adenopathy. Most important of these conditions are Hodgkin's lymphoblastoma and the leukemia. No effective treatment other than irradiation has been found and even under irradiation these diseases have a tendency to progress to a fatal issue sooner or later. Radiotherapy however offers definite temporary relief for a variable period and has a marked effect on the adenopathy rapidly melting away even large gland masses which are visible palpable or visible close by roentgenography of the chest. However such roentgen ray treatment seems inadequate to prevent the ultimate collapse from what appears to be the systemic as contrasted with the localized element of the disease.

According to the author's experience roentgen ray treatment given at medium voltage at least at first is usually more efficacious than that given at high voltage. All of the gland areas of the body whether involved or not should be irradiated. Desjarins treats the neck the mediastinum the

axilla and the inguinal and paravertebral gland groups through large portals of entry giving a suberythematous dose through each portal at 135 kv and using a 4 to 6 mm aluminum filter. This treatment must usually be repeated from one to four times at intervals of from three to six weeks depending upon the patient condition. Thereafter a close watch must be kept of the patient for evidence of recurrent activity.

The glands show little or no tendency to enlarge later when adequate treatment is given from the outset but the patient eventually succumbs apparently from involvement or exhaustion of the blood forming elements of the bone marrow.

In certain cases with urgent symptoms such as marked lymphadenopathy or dysphagia from mechanical obstruction by large masses of enlarged lymph nodes in the neck or extreme mediastinal adenopathy the use of radium or high voltage roentgen rays must be resorted to in order to relieve a desperate condition as rapidly as possible. Otherwise radium and short wave length roentgen rays should be reserved for the late stages of the disease after treatment with roentgen rays of medium wave length is no longer effective.

The author cites four cases showing the reaction at different stages of the disease.



with chromic catgut. In each instance a tongue of omentum was brought into the wound between the muscles but beneath the united fascia. In a number of instances there was failure of union.

Freeman offers as an explanation for the postoperative rupture of abdominal wounds the hypothesis that it often results from inadequate closure of the peritoneum. The omentum and occasionally the bowel forces itself between the loose stitches and in swelling acts as an expanding wedge which forces the tissues apart and prevents proper union, the process being aided by serous exudation or perhaps suppuration. A rupture may then be precipitated by the strain of vomiting or distention, especially when the fascia is involved. Massive adhesions and many postoperative herniae are similarly explained by subcutaneous wound rupture which is more common than complete rupture.

If we assume that postoperative ruptures occur from within outward and not from without inward and that the wedging of the omentum through a gap in the peritoneal suture line is an important factor, it is evident that the danger can be lessened by greater care in the closing of the peritoneum. If interrupted sutures are used they should be placed very close together. If a running stitch is employed the spacing should be short and the stitch pulled tightly and frequently backstitched and locked.

EARL C. ROBITZKE, M.D.

Jakowicz A. and Staehling F. Postoperative Susceptibility to Tetany (Die postoperative Krampfbereitschaft). *J. k. k. Ch.* 1913, 43.

Since a number of factors may cause variations in the ion equilibrium of the body it is logical to assume that these act also in association with the effects of surgical operations and thereby favor the occurrence of postoperative parathyroid tetany. The author attempted to solve this problem (1) by testing the irritability of the facial and ulnar nerve at first by both galvanic and faradic currents and later by the faradic current alone with the use of an indifferent electrode 10 cm. square and a button shaped active electrode with interrupter and (2) by determining the hydrogen ion concentration of the urine by a simplification of the Michaelis method with indicators of a single color and the carbon-dioxide combining power of the blood plasma by the Robony method.

Three types of irritability were found. The first type which was noted as a rule following minor surgical operations showed no increase. In the second type the graph showed an irregularity with its highest point between the first and fourth days. This type occurred as a rule following operations of moderate severity. In the third type there was a second rise equal to or somewhat lower than the first rise which occurred between the seventh and ninth days. This type was found following severe operative procedures with marked loss of blood.

In general a postoperative increase in irritability occurs in 73 per cent of cases. 87.5 per cent of which

are cases of operations near the thyroid region and 64.3 per cent cases of operations in other regions. The corresponding figures of Melchior and Nothmann are 85 per cent and 22 to 30 per cent. The mental make up of the patient seem to be an important factor. The irritability decreases with age.

The carbon-dioxide combining power indicates in cases of postoperative irritability a marked increase in the alkali reserve of the blood. The hydrogen ion concentration alone shows with considerable regularity a more or less marked decrease in the hydrogen exponents and therefore an increase in the concentration on the first day following the operation. This is surprising since because of the loss of blood narcosis, vomiting and shock an increase in the alkalinity of the urine would be expected. Apparently it is to be attributed to the patient's abstinence from food and the administration of morphine which tends to raise the hydrogen ion concentration. On the basis of the carbon-dioxide combining power the increased alkalinity of the urine may be attributed to the increased alkalinity of the blood. This is indicated also by the increase of irritability of the neuromuscular apparatus in cases of increased alkalinity of the blood. Why the increased irritability so often appears later than the increase in the hydrogen ion concentration is not known. In five cases of the third type the Chvostek sign was positive.

It appears probable from these studies that the occurrence of postoperative tetany is favored when to the general postoperative susceptibility to spasm there is added an injury to the parathyroid bodies. Therefore in the treatment the administration of acid is to be considered in addition to parathyroid transplantation. VOLKMAN (2).

Vogt E. Intravenous Infusion of Pituitrin Saline Solution in the Treatment of Postoperative Intestinal Paralysis (Die intravenöse Hypophysininfusion zur Behandlung des postoperativen Darmlähmens). *M. in Ch.* 1913, 509.

Since 1913 the author has used the method of treatment described in this article in eighty-one cases of postoperative intestinal paralysis.

Under ethyl chloride or better local anesthesia the ulnar vein is exposed and under moderate stasis a blunt cannula is inserted with the aid of a sound. The infusion apparatus is completely freed of air in order that the fluid will flow out in a continuous stream. The container is made like a thermos bottle so that the fluid will remain warm. After the introduction of the needle from 50 to 100 ccm. of normal saline solution is permitted to flow out first and then four or five ampoules of pituitrin are added averaging 1 ccm. of the latter to 500 ccm. of the saline solution. Throughout the infusion the patient's pulse, respiration, appearance and condition are closely observed.

In favorable cases the skin becomes pale and the features pinched, the eyes protrude, the pulse

sugar the ketosis cleared up in an hour. On another occasion when he took 20 gm of sodium bicarbonate instead of sugar the ketosis lasted eight hours. Later he tried 20 units of insulin with 50 gm of glucose but this did not hasten the disappearance of the keto is.

From the observations it appears that the treatment for ketosis in a non diabetic patient should be the administration of sugar. In cases of vomiting ketosis develops rather quickly and should be treated by the administration of glucose intravenously or by rectum. It is possible however that when ketosis is encountered in the absence of diabetes insulin may help if the acidosis does not clear up.

In conclusion the author states that the diabetic patient who must undergo a surgical operation has nearly as good a chance as the non diabetic patient if ketosis is prevented by the judicious use of insulin correlated with the diet.

In the discussion of this report CARLTON called attention to the value of blood transfusion in the acidosis of infants. He prefers to give glucose intravenously rather than by rectum. As he has obtained good results with glucose in the toxæmia of acute peritonitis and severe burns he believes that such toxæmias may be due to acidosis.

EVANS discussed the rise in the blood sugar under anesthesia, saying that in some of his experiments he found that ether caused a sharp rise to about 0.18 mgm per cent and chloroform a more gradual rise to about 0.14 mgm per cent.

LAWRENCE said that he avoids chloroform on account of its toxic effect on the liver cells. He has found that ether and nitrous oxide oxygen have as an immediate effect an increase in the blood sugar and as an after effect a decrease in the carbohydrate tolerance and an increase in the insulin requirement.

In closing the discussion the author stated that in his opinion the interference in oxidation during anesthesia is the cause of the rise in the blood sugar. In many cases of toxæmia there is an acidosis in the sense of a decrease in the sodium bicarbonate content of the blood plasma but a ketosis is not necessarily present unless there is very marked debility or a metabolic disturbance.

J EDWIN KIRKPATRICK M D

Case J T. Physiotherapy in the Postoperative Management of Surgical Cases. *Bull Boll Cr & S* 1 & 1/2 p Cl. Battl C. L. N. H. ga. 927 XX 46

Case discusses various physiotherapeutic methods which he states contribute to the comfort of patients who have been operated upon including those who have been subjected to thoracic abdominal and pelvic operations.

The application of cold compresses over the chest during the operation lessens the amount of anesthetic inhaled and enhances the efficiency of the increased amount by producing deeper breathing and thereby increasing the volume of tidal air. The

colon chyster serves the two fold purpose of (1) distending the rectum and lower colon filling the true pelvis and preventing the entry into it of loops of small bowel which might otherwise be crowded down and become adherent and (2) introducing 3 or 4 pints of fluid for absorption.

As soon as the patient has been returned to bed heat should be applied with a blanket run out of hot water through incisions the electric thermophore blanket or a radiant heat device. As soon as the skin is well warmed a cold towel rub or mitten friction should be quickly applied to the entire surface of the body not covered by the wound dressing. This improves vascular tension and stimulates contraction of the peripheral blood vessels thus combating shock. The application of heat over the wound by means of the photophore or the hot water bag or hot sandbag laid against the parts near the wound alleviates pain and allays restlessness. Irritability and sleeplessness have yielded to the application of a fomentation over the spine to radiant heat and even to hot foot bath. Bodily vigor may be improved by the cold mitten friction with the use of cool rather than cold water.

In the treatment of postoperative colonic stasis various hygienic and massage measures are of value. Nausea may be effectively controlled in some cases by the application of a hot water bag over the epigastrium and a moist girdle. Diathermic applications over the operative field as soon as the wound has healed are said to promote more rapid healing and provide earlier freedom from stiffness and distress in the region of the incision. The sun bath or some substitute for it is another valuable adjunct. Simple bed exercises such as deep breathing, flexion of the fingers and toe, increased gradually to include the arm and leg, arm raising, leg raising, turning in bed etc combat pulmonary stasis, loss of vascular tone, muscular weakness and intestinal stasis. To patients confined to bed for a long time automatic exercise is given by electrical stimulation of the larger groups of muscles.

The author does not minimize the value of such measures as blood transfusion the infusion of saline solution or the administration of sedative and stimulating drugs etc but offers the methods described as adjuncts in a therapeutic régime devised to give the patient the greatest possible comfort.

JACOB M. MORRIS M D

Fierman L. The Cause of Postoperative Rupture of Abdominal Incisions. *Arch Surg* 927 600

He observes the postoperative rupture of abdominal incisions has usually been attributed to the giving way of the sutures, unusual strains, infection of the wound, failure of the healing process (pre-disposition, age, disease etc) or the formation of a hematoma.

In experiments on dogs conducted under the direction of Mills fifteen laparotomies were done and the incisions closed in the usual manner in layers

## ANÆSTHESIA

Dimlich H. K. Nitrous Oxide and Oxygen in the Poor Surgical Risk with Special Reference to Magnesium Sulphate Morphine and Novocain. *Am. J. Surg.* 1921 35

Harm B. H. The Preparation of the Dental Patient for Nitrous Oxide-Oxygen Anæsthesia with Special Reference to the Pre-Operative Use of Orange Juice. *Am. J. Surg.* 1921 35

Ross M. A. Anæsthesia in the Head. Spec. Titles as given at the University of Iowa. *Am. J. Surg.* 1921 35

Fleisher R. J. The Administration of Ethylene Oxygen Anæsthesia. *Am. J. Surg.* 1921 35

Dimlich believes that nitrous oxide and oxygen combined with magnesium sulphate morphine and novocain indicate an ideal pre-operative value in cases which are poor surgical risks. He has noticed no

deleterious effects from the preliminary medication. It gives greater relaxation and less post-operative pain.

Harm believes that most patients before operation are to some degree acidotic and that a large percentage of cases of post-operative nausea and depression are due to acidosis. He has found that the pre-operative administration of orange juice a good preventive of nausea.

Ross states that chloroform oxygen is as safe as any anæsthetic when administered by a trained anæsthetist and is better than ether so far as post-operative complications pneumonia acidosis gastric distress etc. are concerned.

Fleisher states that ethylene oxygen anæsthesia is suitable in all kinds of operative work. Cyanosis and excitement are absent. As ethylene explodes it must not be used in proximity to a flame or sparks.  
See also KAHN M. D.

becomes fuller and the blood pressure increases but all of these phenomena soon disappear. However if there is a sense of constriction in the chest, dyspnea or retching the infusion must be stopped or continued only very slowly and the heart stimulated. From five to seven minutes after the first vasomotor reaction peristalsis begins with emptying of the bowel and great relief. After forty-eight hours at the latest the cannula is removed from the vein.

When the vasomotor reaction does not occur promptly one or two more ampoules of pituitrin are added to the solution until possibly a total of eight ampoules have been added.

When peristalsis fails to occur even after gentle massage and the application of heat the introduction of a well lubricated rectal tube may prove effective. When this fails the author repeats the pituitrin infusion after a period of twelve hours although with each repetition the danger is very greatly increased. In quite refractory cases 2 or 3 cm of practically undiluted pituitrin is injected intravenously as near the infusion needle as possible.

In peritonitis the first measure is gastric lavage at the end of which 2 tablespoonfuls of castor oil are left in the stomach. When the patient has recovered from this procedure the infusion treatment is given. When after improvement there is a relapse the procedure may be repeated twice with hopes of ultimate success.

As an accompanying phenomenon rigor is no cause for a pessimistic prognosis. The author has never known of the occurrence of thrombo- or embolism in such cases. Successful results with the method rule out mechanical obstruction of the intestine. The pituitrin works like a laxative but its action is longer lasting. The normal saline solution dilutes the toxins in the blood and the detoxication is helped by the sweating. Digitalis and insulin may also be used.

This method was used when with the usual methods there had been no bowel movement for three or four days after operation. It is noteworthy that all laparotomies were performed with lumbar anesthesia and except in those for carcinoma there was no drainage of the pouch of Douglas. Proctoclysis and heat to the abdomen were used frequently. On the second day enemas of camellia or soap-and-senna solution or possibly also of milk and molasses or enemas or high colonic flushings with the addition of turpentine to the solution were given. Breathing exercises and chimes of poetry to help the action of glycerin enemas. The rectal tube sennatin peristaltin physostigmine and pituitrin injections may be efficacious. When all such measures fail the method described should be tried as there are practically no contraindications to it and special care is necessary only in the presence of heat and vascular changes.

Of eighty-eight patients whose condition was very serious the lives of eight were saved. Several reports in surgical journals show the value of the method.

Bl (G)

## ANTISEPTIC SURGERY TREATMENT OF WOUNDS AND INFECTIONS

Kellogg J H: *Biological Antisepsis*. 1m J S 1 1927 1 249 B H Bull C Ch S 1 & H p Cl 1 B til Crk N luga 1927 xxi 1

The author defines biological antisepsis as the substitution of harmless protective bacteria for pernicious pathogenic organisms. This is accomplished by supplying suitable carbohydrate to the exposed infected surfaces and is based on the fact that aciduric bacteria possess the unusual property of growing in fermentation media of a degree of acidity incompatible with the development of all other known bacteria.

The effects are two fold first the concentrated highly soluble carbohydrate causes an outflow of serum or lymph from the denuded tissues second the carbohydrates applied render impossible the development of putrefactive or pathogenic species of bacteria and being non toxic do not in the least interfere with natural healing processes. Kellogg summarizes as follows:

1 Biological antisepsis is the natural method of combating sepsis.

2 Its underlying principle is prophylaxis—the prevention of the development of putrefactive and pathogenic organisms by the maintenance of a vigorous growth of aciduric organisms.

3 It has been demonstrated by bacteriologic experts that certain carbohydrates render invaluable in creating and maintaining the conditions most favorable for the defence of the organism from pathogenic bacteria.

4 The best carbohydrates for this purpose are lactose and levulose which as to make a smooth and adhesive magma when water is added in the right proportions. This combination makes a simple but most effective biological antiseptic.

5 Biological antisepsis is of equal value in internal and external conditions and has been used with success in offensive discharging wounds and sores, varicose ulcers, operation wound, colostomy wounds, pruritus vulvae, dandruff, proctitis and colitis and skin and scalp affections. It has been found of value also in gynecological and obstetrical practice.

J COS M M S M D

Dogg A R H: *Four Cases of Anthrax Treated with Sclo Serum*. L 1 92 1 435

The author reports four cases of anthrax treated with Sclo serum injected subcutaneously into the loins or over the glutei. The disease in the first case was so common. The patient recovered.

No surgery was contemplated as all of the patient carried well to the serum. The largest total dose was 110 ccm. The serum required a long time to heal over completely although no anthrax bacilli were present. In localized lesion of anthrax radical extirpation of the pustule gives results more quickly but the serum is indicated in the intestinal and local cases.

Howe A McKenr M D

Montgomery H Basal Squamous Cell Epithelioma  
 Illoma Jr Staff Med Surg Clin March  
 16 1927

The term basal squamous cell epithelioma is used to designate the transitional forms that occur between basal cell and squamous cell epitheliomata. These forms occur frequently and their prognosis is more serious than that of basal cell epitheliomata. The origin of basal cell epitheliomata from the basal layer of the epidermis is usually to be generally accepted.

In its distribution and clinical appearance the basal squamous cell epithelioma is so similar to the basal cell epithelioma that in 60 per cent of the cases it is unlistinguishable clinically and a biopsy is necessary for a positive diagnosis. From 15 to 20 per cent of the growths diagnosed clinically as basal cell epitheliomata will prove to be of the transitional type. The microscopic picture is characterized by the presence of both basal cells and cells intermediary between basal and prickle cells which are larger than the basal cells and have large lighter nuclei and imperfect intercellular bridges. Partial pearl formation may occur.

In two of fifteen cases of basal squamous cell epitheliomata metastases developed in the submaxillary region and a previous diagnosis of metastatic basal cell epithelioma had been made. In 6000 epitheliomata Broders found no basal cell types that had metastasized. Therefore if metastasis occurs it is very rare. Practically all metastatic tumor reported as of the basal cell type will prove to be of the transitional type.

The transitional types are not necessarily the result of irradiation therapy. They have been found more or less frequently and require wide surgical excision. They may arise from mucous membranes as well as from the skin. They represent a metamorphosis of basal cell to squamous cell epithelioma. They may metastasize as basal squamous or as squamous epitheliomata. The prognosis must be guarded. On the basis of their degree of malignancy they belong between the second and third grades.

J. R. B. B. V. M.D.

## GENERAL BACTERIAL PROTOZOAN AND PARASITIC INFECTIONS

Rozenow F. and Nickel A. C. Treatment of Acute Poliomyelitis with Polio-myelitis Anti-streptococcus Serum. Results from 1921 to 1925. *Am J D Child* 92: 27

Rozenow and Nickel describe their method of culturing and selecting the strains of streptococcus for immunizing the horse against acute poliomyelitis and their method of injecting the cultures into the animal.

In the clinical cases reviewed the serum was injected intravenously or intramuscularly since horse serum cannot be administered intracranially. The age and number of injections were determined by the age of the patient, the nature and duration of the symptoms and the effects of a previous

injection. If the symptoms abated after the injection their subsequent recrudescence was considered to warrant repetition of the injection. The dosage for various ages is given and the technique of administration described. In children it is wise to repeat the injection even when symptoms do not reappear. When in the cases reviewed paralysis appeared several days earlier and the serum in repeated doses had no effect upon it the injections were discontinued when the paresthesia ceased.

The results in 113 cases in which the serum was used are contrasted with those in 28 cases in which it was not given. The incidence of residual paralysis was much lower in the treated than in the control group especially in the patients who received serum before or soon after the development of slight paralysis. The mortality rate and the incidence of residual paralysis in the control group were not abnormally high corresponding closely to those of untreated cases reported in the literature.

The incidence of the more severe initial symptoms, the average cell count and the incidence of initial bulbar types of the disease were somewhat higher in the treated than in the control group. The age incidence was about the same in both groups. The good effects of the serum occurred independently of spinal drainage. The results in the patients treated by others are in agreement with the authors' results in this and previous studies as regard mortality rate, the incidence of residual paralysis and bedside impressions of the early good effects of the serum. The number and variety of the patients treated are sufficient and the control observations are adequate to justify the conclusion that the poliomyelitis antistreptococcus serum is of value in acute anterior poliomyelitis.

The serum used possessed the power of neutralizing the toxic material contained in cultures of the streptococcus as measured by intracutaneous injection. It diminished the infective power of the streptococcus as measured by intracerebral injection and it cured rabbits inoculated intravenously with the streptococcus properties which are not possessed by normal horse serum. Some of the batches of serum neutralized the virus of the forced experiment by intracerebral inoculation of virus. Rabbits have been immunized against intracerebral inoculation of the streptococcus by the methods used in the preparation of the serum in horses hence the curative action noted clinically would seem attributable to the specific antibodies contained in the serum and not to non-specific or foreign protein effects.

## EXPERIMENTAL SURGERY

Bradford Sir J. R. The Debt of Medicine to the Experimental Method of Harvey. *Lancet* 1926

Harvey was one of the founders of modern experimental science especially physiology. He showed

## MISCELLANEOUS

### CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Bloodgood J C. Biopsy in the Diagnosis of Malignancy. *South M J* 1927 xx 3

In cases of small lesions and small tumors of the skin complete radical excision should be the rule if it can be done without mutilation. The excision should be done with the cautery and the area thoroughly cauterized with some form of actual cautery. The diathermy knife is not sufficient. An immediately made frozen section should be followed by the complete operation if microscopic examination reveals malignancy.

Small subepidermal subcutaneous subfascial and intermuscular tumors not including parotid thyroid or breast tumors should be removed radically. Five per cent of wens of the scalp are malignant and their shelling out is always a dangerous procedure. Myxoma may simulate lipoma. Without radical excision its recurrences have led to a fatal issue. Thirty three per cent of recurrent sarcomata were apparently innocent lesions excised at the time of the first operation. Solid buritis masquerades as a malignant tumor. If its radical removal means mutilation biopsy should be performed first.

In lesion of the lower lip where radical excision of a V shaped piece can be performed biopsy is not necessary. In cases in which a mutilating operation must be done especially in those in which massive induration has been produced by cancer paste the X rays radium or fulguration biopsy is indicated. The same rule applies to lesions of the tongue gums floor of the mouth and oral cavity biopsy depending on the extent of the mutilation necessary for radical excision.

In all early lesions of the larynx biopsy should be done and laryngectomy performed at once if malignancy is found.

There is not sufficient evidence to estimate whether biopsy of sarcoma of bone increases the danger of metastasis. In the author's opinion biopsy is least dangerous if it is performed under the protection of an Esmarch bandage. In his cases the tumor tissue is exposed with the electric cautery and the piece removed with the cautery or the knife. Immediate thermal cauterization of the wound follows. In addition the wound is chemically cauterized with pure carbolic acid followed by alcohol and a 50 per cent solution of zinc chloride is applied with saturated gauze. The zinc chloride may be left as a pack and the skin closed over it if the diagnosis is delayed for several hours. In some cases of bone lesions biopsy is essential since in the early stages traumatic and infectious ossifying periostitis

are difficult to differentiate from sarcoma and unnecessary amputations may be prevented by immediate frozen sections properly interpreted. Biopsy is not justifiable however when the preservation of a functioning limb is impossible.

In the diagnosis of sarcoma of bone the examination of fresh unfixed tissue frozen and stained with polychrome methylene blue seems to be more certain than that of tissues fixed by boiling in formalin and stained with hematoxylin-eosin.

Whenever a periosteal or central bone tumor is explored myxoma must be borne in mind. When a myxoma is found it should be cauterized with a plumber's soldering iron. It is easily recognized in the frozen section and is characterized grossly by the thick tapoca like fluid encountered or its resemblance to hyaline cartilage which cuts like cheese.

In cases of breast tumor benign lesions will not be subjected to a radical operation and early malignancy will not be treated by a complete operation if an immediate diagnosis based on frozen sections is made a part of the operating room procedure. If an actual thermal and chemical cauterization is performed at the time of the biopsy it should not be dangerous provided the immediate complete operation is performed when the microscope reveals malignancy. In obtaining biopsy specimens of small tumors of the breast excision of the whole tumor with the electric cautery is better than incising it.

Other localities for biopsy are the esophagus rectum and colon. The perineal proctostomy offers a better opportunity for obtaining biopsy specimens and for radical removal if cancer is present than the suprapubic operation. In the abdomen biopsy is of value to differentiate the nodules of tuberculosis from those of colloid cancer. In cancer of the cervix and body of the uterus there should be no delay between biopsy and the radical operation. Lesions of lymph glands should be subjected to biopsy.

In the diagnosis of tumors of the parotid gland biopsy has not been helpful. Recurrences are too frequent. Radical removal should be performed. In the diagnosis of tumors of the thyroid gland biopsy is of doubtful value. Adenomata and cysts of the thyroid gland should be removed with a zone of thyroid tissue.

The author concludes that incision into malignant areas without thermal or chemical cauterization and a technique for the prevention of contamination of the wound with malignant cells is associated with danger and that the greater the interval of time between the exposure of the malignant tumor or biopsy and its radical removal the greater the danger.

J. EDWIN ELLER, M.D.

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that the science of medicine must be founded upon physiology. Progress in the art of medicine requires experiments and observation. Because of the complexity of a disease or of some phase of it the problems of disease are often very difficult. When two apparently similar cases react differently to the same treatment the cases are in reality not similar. In typhoid the course of the condition was thought at first to be two weeks in some cases and four weeks in others, but when the paratyphoid bacillus was isolated it was found that the difference in the duration of the fever was due in part at least to a difference of organisms. Erroneous conclusions are often attributable to the wrong premise. When we can be sure of the fundamental laws of medicine we can come more nearly to correct deductions from clinical and physiological investigations.

Jackson's work in cerebral localization is an illustration of the advance made by the careful observations of a master clinician. Certain not probable knowledge in regard to the facts of nature is the end to be desired.

In the study of cardiac phenomena the clinician's observations were made accurate by the introduction and use of certain laboratory apparatus such as the polygraph and electrocardiogram. The advance of our knowledge of a cardiac fibrillation is due to experimental methods the discovery of the condition having been made during experiments upon the heart to determine the origin of the heart beat.

Romanes discovered the nature of heart muscle by experiments on the jelly fish. His work, as continued and verified by Caskell. The electrocardiogram has made it possible to interpret the different phenomena of the heart beat and is especially valuable as an instrument of research regarding the fundamental causes of certain clinical phenomena.

Another striking illustration of the profound influence of a simple experimental method of inquiry in advancing our knowledge of the nature of heart beat and indirectly of all vital activities is afforded by Ringer's work on the effect of minute quantities

of calcium and potassium on the heart. Ringer was a clinical physician who took up abstract problems of pure physiology when he was past middle age.

In conclusion Braffort states that Harvey's experimental method was of importance in laying the foundations of our conceptions of the nature of the processes of work in disease and in giving medicine a scientific status as a branch of natural knowledge.

MARCELL HOBART MD

Mannheim A and Zypkin B Free Autoplastic Transplantation of Cartilage (Ueber die funktionelle Bedeutung der Knorpeltransplantation) Archiv für klinische und experimentelle Chirurgie 1934 2 6 685

Fifty experiments were performed on rabbits to determine the changes occurring in cartilage transplants.

In the first series of experiments observations were made on the healing process in cut wounds of rib cartilage. In the second group autotransplantations of rib cartilage with perichondrium were made into skull defects in the third group autotransplantations of rib cartilage with perichondrium into the subcutaneous and muscular tissues in the fourth group autotransplantations of rib cartilage with perichondrium into skull defects and in the fifth group autotransplantations of rib cartilage without perichondrium into the subcutaneous and muscular tissues. The period of observation ranged from 10 weeks to one year.

In all of the experiments the cartilage preserved its specific structure. Various degenerative and regenerative processes occurred in the transplant. Of considerable importance is the vitality of the transplant was the nature of the tissue in which the graft was placed. The best results were obtained with transplants in the musculature then followed those obtained with transplants in the subcutaneous tissues and finally those obtained with transplants in skull defects. When the perichondrium was removed the regenerative changes were slight and the viability of the transplant was decreased.

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## SURGERY OF THE CHEST

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## SURGICAL TECHNIQUE

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## ABSTRACTS OF CURRENT LITERATURE

## Head

SACHS F Fra ture f th skull  
CART H S ractures f th Skull  
TIA H R F R Intra ra al C mpl at n f  
S a c r e f th Skull In l a th l n t s

**Eye**

I T T J M C t a t L o c l i z t f I t r a  
O u l B l s  
I M R J J r t t c f t h l v e s t R f l t i n  
C l s e  
B r n t t W l L a k u s W H a and M i k l  
A A C Th l l O k n l o c l i n f t  
t l f m m t r y D a s e s f t h F y  
S a u W l L a p h t h m t i s f e r a t i o n  
s y m p a t h O p h t h a l m  
C a r r e s W F d C o s c v e K W U l r  
t n f t h C r o d t B a l l P y o o r a u  
C u r r o s K l l t t L l l S y m p t h t u  
t t i C s e l l y t h A r u f f l r p e S m j l  
R l t f f p e m t  
H i d l A J Th A n t l L e n C p o u l A  
C l l l l t h l x l s t u l  
S a n t M Th T a m n t l t h l n C t r a t  
O p e r a t n  
C t l l A D i a b e t L a g e m R e t a l  
T n s e M t R t o s R t c E x t r a n l  
C h r n t  
M e t r H M K t l l t t h C l l  
l l t l f a u l t t  
C D l C h r n t n u l l b o u r n e  
H m f a g e t t h k t A t r o u f r o m  
M H g l R o s l l f e c t n  
C o l S c t t l a g r a t n f t h e R t a  
L x F C l e m t t h M a c u l B t h F y s  
C l l C O n C t a u A b r m l C n d t o f  
t h M l a k g t B l l C l s e d C l  
t e n a t  
H r t M l B a r r i R D M a l C  
M n x R c l t h e b n D e m n t

**Ear**

M K e r D Dermat f l E t r a l M t u  
C A M H C m m n I f l a m m a t r s A f f e c t n  
t h k o f t h e l t n a l l a  
O p f C l l t r a t t l E r m f D e r m a t t f  
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# INTERNATIONAL ABSTRACT OF SURGERY

AUGUST, 1927

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### HEAD

Sachs E. *Fractures of the Skull* Wisconsin M J  
1927 5: 10

Compound fractures of the skull with and without rupture of the dura should be treated by complete and prompt drainage. The object in this type of fracture is to prevent infection. If infection occurs it is of advantage to work through a clean skin field.

Simple depressed fractures should be operated upon as soon as possible. In the presence of a potential scalp infection or severe shock, operation may be delayed to obtain a clean operative field. Elevation of these fractures will prevent the development of traumatic epilepsy.

Intracranial hemorrhage occurring rapidly gives the classical picture in which there is a lucid interval between the first brief period of unconsciousness and the deepening stupor followed by the development of paralysis or Jacksonian convulsions. The site of the skull injury is not to be taken as guide to the site of the hemorrhage; a neurological examination is necessary. The pathological reflexes and paresis of the muscles of one side of the body mean hemorrhage on the opposite side of the brain. A progressive rise in the blood pressure is diagnostic of increasing hemorrhage and an indication for immediate operation. A subtemporal decompression should be done.

These three groups of cases in which operation is indicated constitute only a small percentage of the cases of skull fracture. The two groups in which operation is rarely required constitute fully 50 per cent of the cases.

Contusion and laceration of the brain and cerebral edema are by far the most frequent results of injury to the skull. The brain becomes rapidly edematous and the marked increase in intracranial pressure is the most important factor due to the edema. These cases usually show some neurological signs, irregularity of the pupils, pathological reflexes, a slow pulse and

irregular or Cheyne Stokes respiration. In rare instances convulsions occur. The blood pressure does not increase progressively unless there is an associated progressive hemorrhage. The problem is to reduce the cerebral edema. This may be done in three ways: (1) by shrinking the brain tissue; (2) by removing fluid from the brain cavities; or (3) by enlarging the cranial cavity. Of these three methods the first is the most effective. It is accomplished by giving hypertonic fluids—33 per cent saturated salt solution or 50 per cent glucose solution—intravenously. From 1 to 2 c cm. should be given per minute until 60 c cm. of the salt solution and from 20 to 40 c cm. of the glucose solution has been administered. Magnesium sulphate may be given by mouth or rectum.

The removal of cerebrospinal fluid may be done by ventricular or lumbar puncture. The author objects strongly to lumbar puncture, believing it to be a frequent cause of death from medullary paralysis.

The third and the most infrequently used procedure—the enlarging of the cranial capacity—is subtemporal decompression. The intracranial pressure must be reduced by ventricle puncture before the dura is opened or else the brain will protrude and rupture.

Rupture of the arachnoid membrane often presents a picture similar to that of middle meningeal hemorrhage. At operation the dura is tense with no evidence of hemorrhage and when it is opened a large amount of yellow and often blood stained cerebrospinal fluid spurts out under pressure. The intracranial pressure is at once reduced and the patient recovers.

In the author's opinion the prognosis depends not so much on the location of the skull fracture as on the injury to the intracranial contents. The more severe the laceration and contusion of the brain the graver the prognosis.

In the discussion of his report Sachs was asked concerning decompression for convulsions. He believes that decompression should be done if repeated

## EDITOR'S COMMENT

SACHS recommendation concerning the treatment of fracture of the skull (p 119) and Carter's review of 380 cases of skull fracture from the Cincinnati General Hospital (p 120) are timely contributions on an important subject. The obvious difference in opinion as to the wisdom of performing lumbar puncture emphasizes the importance of the question and the necessity of determining as clearly as possible the conditions under which lumbar puncture may be performed with safety. Some years ago LeCount and Apfellbach (*J Am M Ass* 1920 lxxiv 501 Int Abst Surg 1926 xxx 426) in a careful study of the roentgen findings in 504 cases of skull fracture pointed out that the most frequent change noted in patients dying from skull fracture was traumatic edema of the brain. Sachs' statement that shrinking of the brain tissue with the aid of hypertonic solutions is the most effective method of reducing cerebral edema and the resulting intracranial pressure suggests the wisdom of substituting this harmless procedure for one which is frequently fraught with danger.

Various phases of genito-urinary surgery are emphasized in a number of exceptionally interesting abstracts in this month's issue. Kees' description of the technique of radium treatment of bladder tumors (p 172) Wulther's report of the end results in 116 cases of cancer of the genito-urinary tract exclusive of the kidney (p 180) and Hartinger's (p 180) and Young and Waters (p 180) discussion of methods of treatment of malignancy of the kidney bladder prostate testis and penis emphasize both the difficulties encountered in the treatment of cancer of the genito-urinary tract and the increasingly hopeful prognosis in cases treated early.

Randall's review of the progress made in prostatic surgery during the past three decades is a well merited tribute to Freyer Young and the many other genito-urinary surgeons who have helped to make prostatectomy a relatively safe procedure. The high incidence of epididymitis (23 per cent) in the cases reviewed and its prevention by preliminary ligation of the vas deferens is particularly stressed by the author. Campbell's report of fifteen cases of torsion of the spermatic cord and his careful description of the pathology and presenting symptoms emphasizes the necessity of recognizing the pos-

sibility of torsion in every case of acute pain and swelling involving the testis (p 176). Braasch's analysis of the indications for surgical treatment in certain cases of pyelonephritis (p 168) Conner and Bumpus' study of essential hematuria and its possible relationship to purpura hemorrhagica (p 179) Hellstrom's report of cases of hydronephrosis from abnormally placed renal vessel and his review of the vascular findings with reference to the kidney in fifty cases (p 166) and Wesson's discussion of the surgical anatomy of Buck's and Colles' fascia (p 177) are a few of the important papers reviewed in the section of genito-urinary surgery.

A number of other abstracts in this month's issue representing various fields of surgery deserve particular attention. Turner and Fraser's study of labyrinthitis based on 150 cases seen during the course of 19 years at the Royal Infirmary at Edinburgh (p 127) and the symposium on external diseases of the ear presented by McKenzie Gray and Ormerod (p 125) reflect the admirable and painstaking work that has helped to give the department of otology at Edinburgh its distinguished reputation. Schlueter and Weidlen's experimental study of postoperative lung abscess (p 159) emphasizes the importance of blood borne infection in this condition and the relative infrequency of abscesses due to aspiration of infected material.

Wells' review of cesarean operation in Detroit hospital (p 159) Brodhead's study of the symptoms treatment and results of accidental hemorrhage during pregnancy (p 155) and Harr and Brown's bacteriological investigation of the contents of the uterus obtained from fifty cases of cesarean section (p 150) concern subjects of especial interest to the obstetrical surgeon.

Campbell's description of the technique employed in the use of the onlay graft for ununited fractures (p 185) Horsley's discussion on the surgical treatment of hare lip and cleft palate (p 130) Sistrunk's helpful suggestions on some problems in plastic surgery (p 191) Zur Verth's recommendations concerning the frequently neglected condition of fractured fingers (p 187) and Gask Handley Turner and Frankau's discussion of the results of treatment of gangrene of the extremities (p 194) are a few of many other abstracts worthy of careful consideration.



problematical and life depends upon the surgeon's judgment and skill.

The chief objects in the treatment are to keep the intracranial pressure within normal limits to prevent immediate complications such as meningitis, brain abscess, etc., and to prevent so far as possible the late effects of skull fracture such as paralysis, epilepsy, and mental changes.

On the patient's admission to the Cincinnati General Hospital he is subjected to a general and neurological examination and an X-ray examination of the skull is made as soon as practicable. A spinal puncture with pressure reading (normal 7 to 10 cm. of water) is done at once and a record of the pulse and respiration is made at twenty minute intervals. In cases of compound fracture depressed fracture and extradural hemorrhage operation is done immediately if the patient's condition permits. For the relief of intracranial pressure the author relies on lumbar puncture and decompression.

In 1922 Jackson advocated spinal puncture as a therapeutic and diagnostic aid in skull fractures. Of 308 cases in which one or more spinal punctures were done all effects characterized by symptoms of medullary compression were seen in only 10 and in these there were large extradural hemorrhages. The contraindications are (1) a compound fracture with open dura or the copious discharge of cerebrospinal fluid from the ear and (2) extradural hemorrhage. In cases with the former there is danger of meningitis and in cases with the latter the danger of medullary compression.

The author classifies the cases reviewed from the point of view of spinal puncture. His conclusions may be summarized as follows:

1. Spinal puncture is not dangerous if it is properly used.
2. In selected cases it has great value as a therapeutic measure and should displace decompression.
3. It is a satisfactory indicator of intracranial pressure and subsequent therapy.
4. In cases with clear fluid of small amounts under high pressure extradural hemorrhage is to be suspected.

The subtemporal decompression described by Cushing was used in cases in which repeated spinal puncture showed either a rising or a continuously high pressure, those in which an extradural hemorrhage was suspected, and those in which there was persistent weakness of an extremity. Simple depressed fractures were operated upon as soon as possible. Compound fractures were treated by thorough debridement. When the dura could not be closed a fascial transplant from the thigh was used.

One hundred and fourteen cases were operated upon as follows: debridement of extensive scalp wounds associated with linear fractures five cases with no mortality; subtemporal decompression eighty-three cases with a mortality of 53 per cent; elevation of a depressed fracture eighteen cases with a mortality of 25 per cent; elevation of a de-

pressed fracture combined with subtemporal decompression eight cases with a mortality of 60 per cent.

The complications were few. Meningitis occurred in three cases and slight wound infection in two.

The total mortality was 37.2 per cent. Of the 145 deaths, ninety-one (62.7 per cent) occurred during the first twelve hours. These occurred in the group of cases in which death results quickly regardless of the treatment. The remaining 298 deaths occurred in the groups of cases in which recovery usually results quickly and those in which the outcome is problematical. The mortality in the latter two groups was 18.1 per cent.

Of forty-five patients re-examined at the end of three or four years, only three were totally disabled by persistent severe mental changes. Residual symptoms resulting from local damage at the time of the injury such as deafness, tinnitus, loss of the senses of smell and taste, ocular palsies and persistent paralysis cannot be remedied. Other symptoms such as persistent headache, dizziness, mental changes and convulsions seem to be the result of prolonged intracranial pressure. In the author's opinion the number of these can be diminished by relieving the intracranial pressure promptly, keeping it as nearly normal as possible during convalescence, and making sure that it is normal before the patient is discharged.

J. EDWIN KIRKPATRICK, M.D.

Teachenor F. R. Intracranial Complications of Fracture of the Skull Involving the Frontal Sinus. *J. A. M. A.* 1919, 19: 1987.

In the author's opinion fractures involving the frontal sinus are the source of intracranial infection with greater frequency than all other fractures of the skull combined. When the inner wall of the sinus is fractured infection is almost inevitable because of the formation of a blood clot in the sinus and the subsequent infection of the clot by material from the nasopharynx during coughing, sneezing, or forceful blowing of the nose. Teachenor therefore advocates routine drainage of the frontal sinus in all cases of skull injury in which this sinus is involved.

The operation can be done under local anesthesia. The small rubber tube used for drainage is so placed that its lumen is directly over the lumen of the frontal duct leading into the nasal cavity.

Involvement of the frontal sinus is manifested by epistaxis, a constant sign, and is shown by the X-ray.

ANTHONY F. SAVA, M.D.

## EYE

Patton J. M. Contact Localization of Intraocular Foreign Bodies. *Am. J. Ophthalm.* 1927, 3: 196.

Geometrical methods of localization are satisfactory only when they are carried out by a roentgenologist interested in the technique and in the case of a patient who will maintain a constant fixation and who has an intra-ocular foreign body that will throw a sufficient shadow. When it has been

Jacksonian convulsions establish the site of cortical irritation. Another question asked him related to injury to the pituitary. Sachs stated that in some of these cases polyuria develops and others symptoms of hypopituitarism are noted several years later.

J EDWIN KIRKPATRICK M D

Carte B N Fractures of the Skull *Ohio State Med J* 19 7 xiii 128

Carte reports upon 380 cases of fracture of the skull seen at the Cincinnati General Hospital in the period from 1922 to 1925 inclusive. He relates the symptoms and the indications for treatment. The signs may be divided into two main groups viz the signs of general and increased intracranial pressure and the localizing signs. Early recognition of the former is essential in order that measures for the relief of the pressure may be instituted. Localizing signs are of value in indicating the site at which the pressure should be relieved.

Much may be learned from the state of consciousness. In the group of 106 patients who were conscious on their admission to the hospital the mortality was 7.2 per cent while in the group of 106 who were semiconscious it was 16.7 per cent and in the group of 177 who were unconscious for various periods of time it was 68 per cent. Maintenance of the level of consciousness is favorable but a deepening coma is indicative of the necessity for relief of intracranial pressure. The classical picture of immediate unconsciousness followed by a lucid interval and then a second loss of consciousness should demand immediate operation for the control of intracranial hemorrhage.

The temperature means little unless it is very high or low. Both a very high and a very low temperature indicate a poor prognosis. In the group of 135 patients who had a normal temperature at the time of their admission to the hospital the mortality was 24.3 per cent. Among the others who had a subnormal temperature on admission it was 45.9 per cent.

One of the most reliable guides in the diagnosis and treatment is the pulse. Progressive slowing of the pulse means a progressive increase in the intracranial pressure. A change in the pulse from a very low to a very rapid rate is usually a sign of cerebral decompensation. Cases with pulse rates mounting to 120 or over have a very poor prognosis even if operation is done.

A steadily slowing respiration with irregularities of depth is of importance as a sign of increasing pressure. In the 338 cases in which the respiratory rate was over 12 per minute at the time of the patient's admission to the hospital the mortality was 32.8 per cent in the twenty cases with a rate of 12 or less per minute it was 7 per cent and in seventy-five cases with Cheyne Stokes respiration it was 80 per cent.

Blood pressure changes are not accurate indicators of intracranial pressure.

Changes in the fundi do not occur early enough to give information regarding increased pressure

when such information is most needed but in late conditions of long sustained pressure it is a valuable sign.

The amount of intracranial damage is indicated by the changes in the pupils. In the cases reviewed in which the pupils were dilated and fixed at the time of the patient's admission to the hospital the mortality was 100 per cent. In the 119 cases in which the pupils were unequal it was 50 per cent and in those with no pupillary change it was 6 per cent. The outlook is better when a dilated pupil contracts to normal size but when a normal pupil dilates intracranial or extradural hemorrhage is suggested.

Hemiplegia is an absolute indication for operation and a contra indication to lumbar puncture. In twenty-nine cases with paralysis of the extremities the mortality was 49 per cent.

Reflex changes were found to be unreliable. Absence of reflexes is a grave sign. In thirty-eight cases with reflex changes the mortality was 39 per cent in 316 cases without reflex changes it was 31 per cent and in thirty-five cases without reflexes it was 95 per cent.

Bleeding from the ears, nose or mouth means extensive damage to the base of the skull. In eighty cases with bleeding from the nose or mouth the mortality was 50 per cent in 137 with bleeding from the ear it was 37 per cent and in the remainder without bleeding it was 20.8 per cent. Cleansing of the external ear with alcohol and the avoidance of irrigation and packs lowered the incidence of meningitis in these cases. Of the three cases in which brain substance was found in the external auditory meatus two were fatal.

The more serious types of fractures are those of the base of the skull and the less serious types those involving the vault. In the series of cases reviewed there were seventy-six fractures of the base with a mortality of 39.8 per cent, 160 of fracture of the base and vault with a mortality of 59.6 per cent and 112 of simple fracture of the vault with a mortality of 13.3 per cent. Compound fractures of the vault were treated by immediate operation. In the eleven cases of this type the mortality was 56 per cent. A very serious type of fracture was the compound comminuted depressed fracture with extensive cortical laceration and associated basilar injury. In the twenty cases of this type the mortality was 60 per cent.

In cases with extradural hemorrhage prompt early operation gives the patient his only chance. In the sixteen cases of this type in the series reviewed the mortality was 50 per cent. The diagnostic features are (1) the history (2) hemiplegia (3) dilation of one pupil and (4) clear spinal fluid under high pressure and of small amount.

From the point of view of treatment cases of skull fracture may be grouped as follows (1) those with a mild degree of injury in which recovery will result (2) those with injuries incompatible with life in which death results quickly whatever treatment is given and (3) those in which the outcome is

Gifford and neosalvarsan was used because of the theory advanced by Jones and Browning that sympathetic ophthalmia has certain characteristics of protozoal disease. *Virgil Westcott M D*

Garretson W T and Cosgrove H W Ulceration of the Cornea Due to Bacillus Pyocyaneus *J Am M J 1917 1: 1211-1210*

The authors report an epidemic of sixteen industrial cases of infection of the cornea with bacillus pyocyaneus a condition that is comparatively rare. In these cases all originated in the same industrial plant in which the men were in widely separated buildings. It was assumed that the boric acid first aid solution was the most probable source of the infection. Proper first aid treatment was given but corneal ulcers developed in from one to four days following the injury and only three cases failed to show any corneal abrasion macroscopically.

The primary treatment for the ulcers consisted in the use of the actual cautery followed by cauterization with phenol neutralized in two or three second with 25 per cent alcohol irrigation of the eye with boric acid and the introduction into the conjunctival sac of a mercury ointment. In several cases repetitions of this treatment were necessary.

Subsequently boric acid irrigation were given every one or two hours and after each irrigation the mercury preparation was again introduced into the conjunctival sac. A 1 per cent solution of mercurochrome 220 soluble and a 1 per cent solution of atropine were used three times a day. Cold compresses were applied continuously.

The ulcers remained active for from three to twenty days and the period of repair ranged from four to fifteen days. In three cases perforation of the cornea occurred. In two complete healing resulted when the perforation was covered by a conjunctival flap but in the third enucleation became necessary because of a persistent fistula.

The men were able to return to work after from sixteen to eighty five days. At the end of four months six of the sixteen patients had vision between 20 and 30. In four other cases large objects could be seen. In the remaining five cases vision was less than 20.

The authors believe that bacillus pyocyaneus may produce in an already injured eye severe ulceration of the cornea and that when it is mixed with staphylococcus albus or aureus more destruction results than when only the staphylococcus is present. Radical treatment is necessary early to check the rapid spread of the ulcers. The resulting scars seem to be more transparent than those due to infection by the pneumococcus. *Geo C R McArthur M D*

Gifford S R and Lucie L H Sympathetic Ophthalmia Caused by the Virus of Herpes Simplex Report of Experiments *J Am M A 1927 1: 465*

In experiments on rabbits the authors inoculated the uveal tract and chiasm with the virus

of herpes simplex. The resulting pathological picture was quite similar to that seen in sympathetic ophthalmia in man. The active virus could be demonstrated in the other eye by positive corneal inoculations and in one case uveitis of both eyes was produced by inoculation from the second eye of an infected rabbit to the chiasm pouch of a second rabbit. A further positive corneal inoculation from the second eye of the animal was obtained showing transmission of the virus through three generations from the first sympathizing eye.

Sections indicated that the nerve and chiasm were the routes of extension of the infection from one eye to the other. Inoculations from a clinical case of sympathetic ophthalmia were negative. The theory that the cause of sympathetic ophthalmia is a filtrable virus with neurotrophic properties similar to those of the herpes virus is given some support by this work. *Thomas D Allen M D*

Bedell A J The Anterior Lens Capsule A Clinical and Pathological Study *J Am M A 1927 1: 348*

Bedell discusses the congenital inflammatory and traumatic changes occurring in the anterior lens capsule. Among the congenital changes are pupillary membranes and certain types of pigmentation. Of the pathological change the most important is exudate on the capsule. Frequently in addition blood vessels are found on the capsule. These are always evidence of an intraocular lesion if they are present without injury. They indicate chronic uveitis. Certain types of pigmented cell on the capsule are of inflammatory origin.

Trauma causes fold in the lens capsule localized cataracts involving the capsule, siderosis and rings of deposit such as those as has been described. Following an iridectomy normal and abnormal conditions of the zonular fibers may be seen. When a congenital coloboma of the iris is present and when the pupil is widely dilated the capsule affords an interesting field for study. The various changes described are recognized more easily and the prognosis regarding them is rendered more accurate when the slit lamp is used. *Thomas D Allen M D*

Smith H The Treatment of the Iris in Cataract Operations *Arch Ophth 1927 1: 3*

Smith states that prolapse of the iris does not occur until after the sclerocorneal wound has become sufficiently sealed to permit the reestablishment of intra-ocular tension. When the patient gives a squeeze with the orbiculars it is then burst open and the iris is swept into the wound with the gush of escaping aqueous. If it remains intact it is ballooned out by the pressure of the aqueous from behind. Therefore Smith does not make a conjunctival flap nor suture the corneal wound.

His technique in cataract extraction is as follows (1) 180 degrees co-neoscleral section (2) tumbling lens (intracapsular extraction) and delivery of the lower end first (3) three peripheral iridectomies 10

impossible to meet these requirements other methods have been employed. Chief among these was the clamping of bits of metal into the conjunctiva. As this method necessitated the wounding of the conjunctiva the use of light wire rings was devised. The author makes a 2 mm ring of No. 26 soft silver suture wire and clamps it into the conjunctiva near the limbus below and at the horizontal margins.

VIRGIL WESCOTT, M.D.

Imre J. Jr. Protection of the Eyes by Reflecting Glasses. *Arch Ophthalmol* 1971; 1: 141

The author discusses (1) the common colored glasses produced without any scientific basis and recommended for healthy as well as diseased eyes (2) glasses which absorb the ultraviolet rays and (3) glasses which absorb the infrared rays.

Most of the modern protecting glasses are recommended for absorption of ultraviolet rays. Glasses that are equally good for either end of the visible spectrum are not in use. Some of the Cooke's glasses absorb the ultraviolet rays under 390 and also from 35 to 37 per cent of the infrared rays. This however is not satisfactory.

The generally known protecting glasses are all faulty in that they fail to give protection against heat rays. Through absorption a considerable quantity of the visible rays are lengthened and changed to heat rays, a decided accumulation of heat being thereby produced behind the glasses.

It is very desirable that the superfluous and harmful rays should be held back from the eyes not by absorption but by reflection. Reflection is increased in glasses which have the characteristics of a mirror but let through the necessary quantity of visible rays.

It is known that very thin metallic layers are transparent but have quite an extraordinary reflection ability. Most of the rays which do not pass through the thin metal layers are reflected.

Using glasses having very thin layers (10-15 millionth of a meter) of gold, silver and platinum the author found by experimental means that infrared, ultraviolet and varying amounts of visible rays can be reflected.

The wearing of such glasses is very agreeable because there is no accumulation of heat behind them. Smoked glasses allow the penetration of heat rays. For very acute iritis the author uses platinum glasses with a thickness such that they reflect 98 per cent. The 2 per cent of visible rays is quite sufficient because the eye becomes adapted to this quantity of light in ten or fifteen minutes.

THOMAS D. ALLEN, M.D.

Benedict W. L. Lackum W. H. and N. C. Kel A. A. C. The Pellet Orogans as Foci of Infection in Inflammatory Diseases of the Eye. *Arch Ophthalmol* 1971; 1: 15

The relationship between diseases of the eye and infection about the roots of teeth and in the tonsils is one of metastatic inflammation through the trans-

fer of organisms by the blood stream. It would seem that an analogous relationship exists between other organs of the body in which pathogenic bacteria may become indigenous without the production of local symptoms. Many of the metastatic inflammations of the eye due to focal infection have been relieved by the removal of infective processes or by the treatment of infected areas and the elimination of bacterial infection.

Scleritis and sclerosing keratitis frequently occur in the eyes of women at the beginning of the menstrual period. The periodical exacerbations of scleritis occur quite regularly beginning a day or two before menstruation and lasting for from two to five days. A remission occurs between the menstrual periods.

In an attempt to reproduce disease in the eyes of animals by means of cervical cultures six cultures from the cervixes of six patients with lesions of the eye were injected into sixteen rabbits. Five (31 per cent) of the animals developed macroscopic lesions of the eye. To show that the prostatic glands harbor pathogenic organisms eighteen cultures from the prostates of eighteen patients with lesions of the eye were injected into forty-five rabbits. Thirteen rabbits (29 per cent) developed macroscopic lesions of the eye. Therefore of a total of sixty-one rabbits injected with these twenty-four strains eighteen (30 per cent) developed lesions of the eye in contrast to 7 per cent of 181 animals injected with seventy-nine strains obtained from the teeth of 15 prostates and cervixes of patients without disease of the eyes.

In another series of experiments with cultures from the tonsils of prostate and cervix 333 strains from patients having lesions other than those of the eye were injected into 708 animals. Less than 1 per cent developed lesions of the eye. When strains from the prostates and cervixes of patients with lesions of the eye were used 30 per cent of the animals injected developed lesions of the eye.

Shahan W. E. Panophthalmitis. *Exsplantation Sympathetic Ophthalmia*. *J Ophthalmol* 1971; 1: 1

Shahan reports a case of perforating injury of the ocular body with incomplete destruction of the contents of the globe by panophthalmitis. Evisceration was done fifteen days after the injury and sympathetic ophthalmia developed in the other eye. Twenty days after the evisceration symptoms of irritation with gradual loss of vision were noted. The shrunken globe was enucleated and atropine sodium sulfate and neosalvarsan were given. The eye gradually recovered a division and accommodation returned to normal.

Evisceration was done to avoid the possibility of meningitis. Atropine was instilled not only because of the use of atropine but also because Adler's research seems to prove that the permeability of the vessel walls to protein molecules is diminished after its use. Salicylates were given by mouth as indicated by

The eye then remained straight but the vision continued and an external frontal sinus operation was done. The eye has since been quiet and has had more than the average visual acuity but there is a large scotoma in the upper field. SAMUEL A. DICK M.D.

Ocell S. Cystic Degeneration of the Retina. *Im J Ophth* 1927 35 x 61

Cystic degeneration in the peripheral part of the retina occurs most frequently in elderly persons but may be found also in children. Histological examinations of the eyes of fifteen children ranging from newborn infants to children 4 years and 7 months of age revealed the condition in three all about 4 years old. O.H.D. agrees with the old theory that the condition is due to the close connection of the peripheral retina with the vitreous body and the influence of contraction of the ciliary muscle.

SAMUEL A. DICK M.D.

Clark E. Coloboma at the Macula (Both Eyes). *Im J Ophth* 1917 35 x 93

Mann I. C. On Certain Abnormal Conditions of the Macular Region Usually Classified as Colobomata. *Im J Ophth* 1917 x 99

CLARKE reports two cases of coloboma of the macula. In the first case the condition was bilateral and the eyes were markedly myopic. During the patient's infancy there was a horizontal nystagmus. Later this disappeared. Vision with correction was 6/24 in the right eye and 5/20 in the left. There were other congenital defects as well. In spite of the reduction in vision the patient was able to go through college and enjoyed various games including tennis. In the second case the right eye was normal but the left was blind and had a large coloboma at the macula. Vision in the left eye with correction was only hand movement.

MANN discusses several colobomata of the macula into three groups: (1) pigmented macular colobomata, (2) non-pigmented colobomata, and (3) macular colobomata associated with abnormalities of the blood vessels. In the first, which are the most common, the horizontal papillaris is absent while normal retinal vessels are seen surrounding the defect. The second type shows a fairly white defect with an ectatic base. The third type shows stop abruptly at the margin. Cases of the third type show a blood vessel coming from the floor of the defect either into the vitreous or communicating with a branch of the central artery of the retina. Mann does not accept the view that these changes are developmental. She believes they may be due to intra-ocular hemorrhage at birth or intra-uterine choroiditis or a postnatal macular degeneration. SAMUEL A. DICK M.D.

Hepburn M. I. Batten R. D. Mann I. C. Dawson R. C. and Others. Discussion of Colobomata of the Macula. *J. R. Soc. Med. Lond.* 19 x 111

In this discussion it is evident that there is a slight difference of opinion with regard to the etiology and

therefore the exact nature of coloboma. Hepburn and Collins discussed the type which develops on a non-inflammatory basis and is due to an arrest of development.

The others grouped with this type the cases in which pigment is found in smaller or larger amounts and seemed to be unanimous in the opinion that the condition is always due to some irritative or inflammatory condition usually a fetal lesion and that when it is prenatal there was some ectasia of the sclera at that point. Butler reported a case of coloboma with heaped up pigment in one eye and the other eye normal. After several years the normal eye developed tubercles in the macula. The tubercles cleared up under treatment but later recurrences resulted in blindness.

THOMAS D. ALLE M.D.

## EAR

McKenzie D. Dermatitis of the External Meatus. *J. Laryngol. & Ot.* 1927 1 x 149

Gray A. H. Common Inflammatory Affections of the Skin of the External Ear. *J. Laryngol. & Ot.* 19 x 155

Ormerod F. C. Intractable Forms of Dermatitis of the External Ear in Cases of Chronic Suppurative Otitis Media. *J. Laryngol. & Ot.* 19 x 165

McKENZIE discusses furunculosis, desquamative otitis externa, otomycosis, primary diphtheria, syphilitic condyloma, and chronic eczema.

Furunculosis is a common condition, is difficult to combat and presents diagnostic pitfalls. By its posterior extension a subcutaneous abscess over the mastoid may be produced. Exploration of the mastoid process may then be necessary to establish the diagnosis. Sequelae such as perichondritis, cellulitis of the neck and face and extension to the middle ear are encountered. In some cases vaccine therapy is of value.

Desquamative external otitis is usually found deep in the external canal. The essential cause is unknown.

Chronic dermatitis of the canal is frequently produced by fungi. The diagnosis is made by microscopic examination of the debris. In certain cases the clinical picture is typical. Such cases clear up under the daily instillation of alcohol.

Primary diphtheria if suspected is easily verified by culture. Antitoxin is a specific remedy. In the author's cases a typical membrane was visible.

Syphilitic condylomata are rare and usually superimposed on the moist surface resulting from chronic suppuration of the middle ear. The lesions are multiple, discrete, red, irritable looking papules resembling certain types of acute eczema.

Chronic infiltration of the external lining presents diagnostic and therapeutic difficulties. Suppuration of the middle ear must be excluded if possible. The treatment usually consists in removal of the accumulated debris and the application of silver nitrate solution to the lining followed by ear drops of glycerine.

o'clock 12 o'clock and 2 o'clock (4) eserine ointment while the patient is on the operating table and every second day for a few times and (5) potassium bromide in large doses. Smith does not paralyze the orbicularis or inject the seventh nerve or truss up the eyelid with a apparatus. He believes that the normal tonic contraction of the orbicularis affords an excellent splint better than any substitute yet devised.

When prolapse has occurred Smith does not interfere until from twelve to fourteen days after the operation because of the extraordinary sensitivity of the iris after the operation.

The treatment of drawn up pupil he divides into four types of operations. The two he uses and recommends are as follows:

1. A sharp cataract knife is inserted at right angles to the surface of the cornea where the lower edge of the pupil is to be and an opening is made just large enough for the introduction of a pair of forceps. A fine pair of iris forceps is then introduced the margin of the iris grasped and brought out and the smallest piece possible is cut off. This leaves a pupil which looks normal and is in normal position. The scar in the cornea is out of the way of the pupil and is as to be visible only on careful inspection.

A knife is passed on the flat just behind the sclerocornea at 5 or 6 o'clock according to which eye is affected and driven across in front of the iris to the opposite sclerocornea. So far no leakage will have occurred if the knife is held lightly. The edge of the knife is then twisted 30 degrees back the point leaning well into the vitreous and the knife then withdrawn the handle being raised to keep the point leaned into the vitreous and the back of the blade pressed against the sclerocorneal incision. If a straight cataract knife in first class condition is used in this way it never fails to cut the iris. The secret of success lies in the use of the knife to make a draw out. If the knife is simply pushed against the iris it will not cut however sharp it may be the iris simply recedes before it. T. O. W. D. ALLE. M.D.

Chase L. A. Diabetic Lipæmia Retinitis. *Cu J* 21 43 J 97 97

Chase reports a case of diabetic lipæmia et al which showed hyperlipæmia hyperglycæmia acidosis and glycosuria. Under treatment with insulin the glycosuria and acidosis cleared up rapidly and the lipæmia cleared up in fifteen days.

THOMAS D. LLEN. M.D.

Troncoso M. U. Retinitis Retinitis Extrema and Chorioiditis. *Am J Ophth* 97 35 3

Histologically the tissues of the choroid and retina are intimately associated but have two sources of blood supply, one the retinal arteries a terminal system and the other the choriocapillaries. The intimate association and contact of the tissues and the dual blood supply make for a multiplicity of degenerations and inflammations with consequent difficulty in the differential diagnosis and definition.

Anatomically inflammations and degenerations of the inner coats of the eye may be divided into those affecting the choroid those affecting the external retina and those affecting the internal retina. The term retinitis is suggested to indicate degenerative changes in contradistinction to changes of inflammatory origin. Most of the degenerative changes occur in the internal layers of the retina. Troncoso suggests also a classification of retinitis retinitis and choroiditis. ALGER W. COFF. M.D.

McCrea H. M. R. Retinal Petechia is a Clinical Entity of Auto Intoxication. *Proc R. Soc. Med. Lond* 197 5 607

Retinal petechiasis is defined as an exudation of blood through the walls of the retinal vessels with out rupture of the vessel wall as in retinal hemorrhage. It is brought about by circulating toxins from distant foci of infection and is relieved by the removal of the foci of infection.

The author reports the cases of fifteen patients ranging in age from 40 to 83 years. In most of the cases the organisms responsible were streptococci but in some of them the causative agent was the colon bacillus. Dental foci occurred as definite alveolar infections at the roots of the teeth often behind the lower wisdom teeth. In most of the cases of tonsillar infection the tonsils were small and buried and pus could be passed from them after retraction of the pillars. This secretion was examined microscopically. In many cases the maxillary and ethmoid sinuses were infected. The author recommends that in the absence of definite foci elsewhere the antra be washed out with saline. In one case in which the bacillus coli was found in the catheterized urine the condition cleared up under the use of a vaccine and hexamine.

SAMUEL A. DILL. M.D.

Godwin D. E. Chorioretinitis and Recurrent Hemorrhages into the Retina and Vitreous from Multiple Focal Infection. *Am J Ophth* 197 3 7

Following a review of the literature on recurrent hemorrhage of the retina which he learned after the removal of infected foci the author reports the case of a man 20 years old whose first attack of chorioretinitis with hemorrhage occurred at the age of 21 years. The patient was first seen in a second attack which accompanied a severe nasal infection. Following the removal of infection he returned to the eye cleared with vision of 6/4. One month later the same ocular condition recurred with violent pain and ethmoid operation was followed by very slow improvement.

Ten months later there was a exacerbation of the eye symptoms and a tonsillectomy was done as the tonsils were obviously infected. Later the right frontal sinus was opened and nasal infection appeared. Following this nasal operation at this time the affected eye developed upward deviation but ultimately the deviation disappeared spontaneously.

the cavernous sinus. Nevertheless the condition is always serious, however insignificant it may appear in the beginning. Evidence of this was offered by the case of a patient who died on the seventh day of an acute staphylococcus septicæmia in spite of vaccine treatment on the first day and an extensive operation on the third.

Lubet Barbon said that cases with extensive induration and a not very high local temperature are always suspicious. Chemosis and unilateral or bilateral exophthalmos are certain signs of thrombosis of the cavernous sinus.

AUDREY G. MORGAN, M.D.

Cole, Beeler and Smith: Roentgenological Evidence of Nasal Sinus Disease. *J. I. d. a. St. I.* 11:1, 1927, 55.

As a result of the work of Granger, Grier, Skillern, Pfahler, Law, and others, a new technique has been developed for the roentgenological examination of the nasal accessory sinuses. Formerly the X-ray was only used to demonstrate the size and contour of the sinuses, but today they are found of considerable aid in determining the pathological conditions within these cavities. The diagnosis depends on an accurate interpretation of the X-ray plates which depend in turn upon a knowledge of the anatomy of the nasal sinuses and the types of shadows cast by different pathological conditions in the nose. In all of the sinuses, acute catarrhal and suppurative sinusitis, chronic sinusitis and polypoid degeneration can usually be diagnosed and differentiated, especially if the history and course of the disease are considered with the roentgen findings.

MANFORD R. WALT, M.D.

Garretson, W. T.: Osteoma of the Frontal, the Maxillary and the Sphenoidal Sinuses with a Report of Cases. *I. & O. I. y. g. I.* 9, 35.

The author reports three cases of osteoma. In the first case the tumor involved the frontal and ethmoidal sinuses and orbit; in the second the sphenoidal, maxillary and frontal sinuses; and in the third the right antrum. In the first and third cases operation was performed and was followed by recovery. In the second case operation was contra-indicated on account of the patient's age.

Two hundred and fifteen cases of single or multiple osteomata have been reported in the literature. The site of the tumor was most frequently the floor of the frontal sinus. Osteomata usually develop when the bones are undergoing their greatest developmental activity. There are three varieties—the bony and the compact and the spongy. The tumors vary greatly in size. Their growth is usually slow. They are more or less encapsulated and are usually joined to the floor of the sinus by a pedicle with a cancellous structure. Their surface conforms to the confining wall and is covered with connective tissue. An osteoma may be present for years before relief is sought. The symptoms include the manifestations of the growth within the sinus and the symptoms

produced by its pressure on adjacent cavities. The diagnosis is usually made with the X-ray.

MANFORD R. WALT, M.D.

Turner, A. L. and Reynolds, F. E.: Acute Infection of the Left Sphenoidal Air Sinus, Cavernous Sinus Thrombosis with Organization of the Clot, Leptomenigitis. Operation, Death. Autopsy. *J. Laryng. I. & O. I.* 1927, xlii, 181.

The authors report a case of acute fatal leptomenigitis secondary to cavernous sinus thrombosis. The patient was admitted to the hospital with a history of severe nasal catarrh and sore throat of four days' duration. The sudden cessation of a profuse nasal discharge which had persisted for two days was followed by prompt restriction of the movements of the left eyeball and chemosis of the conjunctiva.

Under local anesthesia the anterior end of the middle turbinate was removed and the anterior ethmoidal cells were opened. No pus was evacuated. On the following day no improvement being noted, the left frontal, ethmoidal and sphenoidal air sinuses were explored through an external incision. This examination also failed to reveal pus but showed the lining of the sphenoid to be somewhat congested. Five days later there was marked improvement in the general condition with a decrease in the swelling of the lids and increased movement of the eyeball. There was no optic neuritis. Two days later a recrudescence of delirium developed, but free opening of the left frontal sinus failed to give relief and no extradural abscess could be discovered. Death occurred on the seventeenth day of the illness.

At autopsy pus was found in the subarachnoid space over both frontal lobes and a slight meningitis over the lower surface of the brain. The left maxillary sinus was filled with gelatinous yellow pus. The pus from the antrum showed pneumococci and at the time of operation staphylococci and diphtheroids were cultured from the left frontal sinus. Microscopic examination of sections made from the cavernous sinuses showed the left to be almost completely obliterated by fibrous tissue. On the right side most of the blood spaces persisted. In the meninges several thrombosed veins were found in the dura mater covering the floor of the middle cranial fossa. No thrombosed pial veins were seen.

Pus having been present in both the maxillary and sphenoidal sinuses, the question arose as to the site of the primary focus of infection of the cavernous sinus. As acute bacterial inflammation of a blood vessel injures the endothelial lining with thrombus formation and later extension to large vessels, the authors believe that in this case the cavernous sinus thrombosis became organized with re-establishment of the circulation and consequent amelioration of the pressure symptoms but that the infection was not restrained and extended to the pia arachnoid space. In a certain number of cases of septic thrombosis of the cavernous sinus spontaneous recovery results. This occurs most frequently

the bone erosions and fistulae occurred in a large percentage of the cases. In six cases a patent oval window without any other associated lesions was discovered. Facial paralysis was noted in 8 per cent of the 150 cases. Cholesteatoma was present in 62 per cent of those of chronic otorrhea with a change in the labyrinth capsule.

In the second section of the article the clinical aspects of 102 cases of labyrinthitis without intra-cranial complications are considered. Representative types are dealt with in detail.

In thirty-eight cases of circumscribed labyrinthitis associated with chronic middle ear suppuration the region of the lateral canal was involved. The severity and duration of the labyrinth attacks varied. Latent and active periods alternated. As a rule the middle ear type of deafness with considerable loss of hearing was present. Spontaneous nystagmus may be present or absent. Its duration varies. The fistula sign was obtained in eighteen of the twenty-four cases studied. A typical case is reported.

The diffuse acute manifest type of labyrinthitis was found in fifteen cases. Twelve of these were purulent in character and three were serous. Symptoms due to the disturbance of the static labyrinth predominated but complaint may be made of tinnitus or increased deafness. The attack is initiated by sudden vertigo and disturbance in equilibration. Nausea and vomiting accompany or follow these symptoms. During the early stages there is a well marked horizontal and rotary nystagmus to the sound side. In acute serous labyrinthitis headache is not complained of but in the uncomplicated purulent type occipital headache is usually present. Ever as noted in the initial stages of four cases of purulent labyrinthitis. In the serous type there is usually no elevation in the temperature. Functional examination of the ear is necessary to determine the exact type of diffuse labyrinthitis. The term serous is used to designate cases in which a permanent loss of hearing remains.

Three cases with complete clinical data are reported to illustrate the two types of acute diffuse labyrinthitis.

As the acute stage subsides and the manifest symptoms disappear the pathological process becomes both chronic and latent. This condition is known as chronic (latent) purulent labyrinthitis. Thirty even such cases were recognized. Recognition of the purulent focus is of importance as operative interference may result in meningitis. A typical case history is reported.

The spontaneous cure of the purulent process results from organization with fibrous tissue and new bone. This condition was observed six months after the onset of the acute stage. When ossification of the diseased labyrinth is complete the sound labyrinth assumes a compensatory function. The clinical diagnosis of the healed functionless labyrinth is based on the relative duration of the after nystagmus obtained by rotating the patient to the

right and to the left. Spontaneous cure of labyrinthitis with loss of function was found in twelve cases. An illustrative case is reported.

W. V. PARON, M.D.

Eagleton W. P. Physiological Factors in the Control of Otitic Meningitis. *L. S. S. P.* 1927 2 11 13

In Eagleton's opinion suppurative meningitis becomes cured spontaneously very much more frequently than is generally believed and is curable as long as it is localized.

Infection of the frontal lobe differs from infection of the temporal lobe because the mechanism of protection is entirely different. When the mucous membrane in a frontal sinus is destroyed by surgical operation the protective process is destroyed. It is much better to remove the bone itself from the posterior wall than to destroy only the mucous membrane and leave bone that is apt to die and become infected.

JAMES C. BRASWELL, M.D.

Granger A. A New Position for Making Roentgenograms of the Mastoids. *J. Am. M. Ass.* 1927 12 11 37

The petrous bone view is far superior to the lateral oblique view in the diagnosis of mastoid infections but is more difficult and tedious to obtain and in the cases of patients who are usually very weak or very septical or who have very short necks it is impossible to obtain. Granger's technique is as follows:

1. The mastoid localizer is fitted with the 50-degree angle block provided for use with the roentgenograms in this position are to be made.

2. A cassette covered with the localizer equipped as described is placed on a 25-degree angle block with the inclination toward the patient's feet.

3. With the patient lying on his back the head is placed with the vertex resting on the cassette and one side of the head against the 50-degree angle block so that the sagittal plane of the head will be parallel to the latter. The nose within the adjustable upright support the septum against the lower one and the forehead against the upper one.

4. The external auditory meatus is directed through a point in front and in line with the external auditory meatus. In these photographs the subject is in position for roentgenograms of the left mastoid.

JAMES C. BRASWELL, M.D.

## NOSE AND SINUSES

Wille Furuncul of the Ala Nasi. *E. T. N. L. S. S. P.* Operation. De the from Staphylococcus. A Septicæmia on the 5th Day. (Fr. J. d. 121) du. at r. l. s. g. p. r. c. m. t. u. p. t. m. j. p. r. p. t. m. c. r. s. t. a. p. h. y. l. o. c. c. u. s. t. a. n. t. i. d. l. a. s. l. g. b. x. i. o. s.

The prognosis of furuncul of the ala nasi and upper lip has become much better since the introduction of systematic ligation of the angular vein which prevents its worst complication thrombophlebitis of



be more often relieved by incisions along the laughing wrinkle. Cleft lip may be closed in two stages. The delayed flap method of suture may be indicated in certain cases. In every case of failure to obtain union a secondary suture should be made during the second postoperative week.

JAMES C BRASWELL M D

Pendergrass E P Epidermoid Carcinoma (Epithelioma) of the Lip. Diagnosis Pathology and Discussion of the Treatment by Non Surgical Measures. *Surg Clin N Am* 9 7 11 7

Pendergrass reviews the normal histology of the lip and the pathology and early clinical picture of cancer of the lip. In the differential diagnosis of cancer it is necessary to exclude syphilis, tuberculosis and granuloma pyogenicum. Involvement of the glands can be most readily detected by digital palpation with a finger in the floor of the mouth and the patient's head relaxed.

When necessary Pendergrass removes a specimen for diagnosis with the endothermy knife. Anesthesia induced by the topical application of 10 to 20 per cent cocaine as hypodermic injection is associated with the danger of entering a field of involved lymphatics.

In the removal of the local lesion Pendergrass uses radium. Fifty milligrams of radium screened by 5 mm of aluminum which removes only 50 per cent of the beta or therapeutic rays are applied in a dose of 60 mgm hrs per square centimeter of lesion. Larger lesions receive 70 mgm hrs per square centimeter. If the lesion is 1 cm in diameter the radium irradiation is supplemented by endothermy. Under deep anesthesia induced with ether (the ether then being removed from the room) or under nitrous oxide or local nerve block anesthesia the entire circumference of the lesion is coagulated by bipolar endothermy 1 cm distal to the irradiated edge. No infiltration is used. The entire lesion is then removed with the endothermy knife. The endothermic treatment is given twenty-four hours after the radium treatment in order to obtain the effect of the irradiation. The slough separates in from seven to ten days and the area finally heals with a soft supple margin and very little persisting deformity. Occasionally however a hypertrophic scar or hard indurated keloid develops. This must be differentiated from recurrence. The keloid may remain hard for two years and eventually disappear without treatment.

Syphilis co-existing with carcinoma should not be treated simultaneously. After treatment of the cancer a six month interval should be allowed for the development of irradiation fibrosis and endarteritis before anti-syphilis treatment is instituted.

For the lymphatics draining the involved area X-ray treatment directed through each cheek is used if no gland or only a few glands are palpable. An erythema dose producing slight tanning in ten days is given. The normal tissues surrounding an involved area play an important part in determining

whether irradiation will be beneficial or not. Care must therefore be taken to preserve them.

For larger nodes deep irradiation is used if there is no danger that the nodes will break down. In addition radium packs are applied around the chin and over the glandular areas under the chin and jaws. These regions are difficult to reach by deep therapy. If the desired effect is not produced by the first treatment the filtration should be changed. Four series of irradiation treatments are given at intervals of six weeks.

Pendergrass does not advise primary block dissection of the neck. Surgical exposure of the glands with the implantation of radium seeds has also failed to cure. Enlarged glands of the neck seem to respond to divided doses of irradiation therapy. If the nodes have been irradiated long enough for the development of definite fibrosis and are gradually increasing in size the local removal of a large movable node which shows a tendency to break down or the implantation of gold emanation tubes if there is no tendency to break down is advisable. The necrosis of tissue that formerly attended the implantation of bare emanation tubes is prevented by gold filters.

In cases of advanced epithelioma of the lower lip the pain may be relieved by section of the fifth nerve or the posterior cervical roots as they emerge through the intervertebral foramina on the affected side (cervical rhizotomy).

Fifty eight of 172 cases treated are analyzed. In fifty of these there was no local recurrence. In eight in which a recurrence developed it disappeared after a second treatment. Of thirty seven patients with no metastasis at the time of treatment thirty four did not develop metastasis after the treatment. Of twenty seven with metastasis at the time of treatment the enlargement of the glands disappeared in five, showed no increase in six and increased in eleven.

HARRY C SALTZSTEIN M D

Owen M Lesions of the Tongue with Special Reference to the Location. *Tex St J M* 9 7 11 693

The diagnosis of a lesion of the tongue may require repeated biopsy. Benign lesions occur most frequently on the dorsal surface of the anterior half of the tongue at or near its tip. Malignant lesions are found most commonly on the base and margins but epithelioma associated with syphilis occur in the middle third of the dorsum near the median line. In general malignant lesions near the tip of the tongue are of a lower grade of malignancy than those nearer the base.

GEORGE R McALLISTER M D

## NECK

Elliott C A Diseases of the Thyroid Gland—*Medical Clinic J Low St J M Soc* 1927 11 84

The author emphasizes the necessity for a clinical classification of hyperthyroidism that is usable at

when the primary focus is in the ear. In some cases recovery is favored by operation on the lateral sinus. The authors report a case of the latter type.

GEORGE R. McCLURE, M.D.

Merkel C. G. Use of Ephedrine in Rhinology  
La J. P. 1927 xiv: 2

Ephedrine is an alkaloid, the active principle of the Chinese *ma huang*. It can be obtained in the alkaloidal chloride and sulphate forms. The chloride form has proved to be the most satisfactory. It is used in 1, 2, 3 and 5 per cent solutions, but the 3 per cent solution is best.

In general local nasal treatment is indicated in (1) acute nasal and accessory sinus disease in adults in which surgery is contra-indicated, (2) chronic nasal and accessory sinus disease in adults as an adjunct to surgery, (3) acute nasal and accessory sinus disease in infants and children in which surgery is justifiable only when complications arise, and (4) chronic nasal and accessory sinus disease in children in which surgery should be avoided except for the removal of toxic foci.

In acute inflammations the author has found ephedrine of great value for diagnosis and to diminish congestion and facilitate drainage. It is used as a spray for topical applications made with cotton on a probe and on cotton packs. Constriction of congested mucosa is noted in from forty to sixty seconds and lasts for from three to six hours without any disagreeable after-effects. The author recommends ephedrine as a safe stable drug with a quick and sustained action, not followed by secondary relaxation.

GEORGE R. McCLURE, M.D.

## MOUTH

Horsley J. S. Jr. Harelip and Cleft Palate I  
J. M. 1913 97: 11732

The plastic surgeon has no group of cases in which good results are more important than in those of harelip and cleft palate. The ultimate success of plastic operations depends upon accuracy, gentleness and careful attention to details. Harelip should be corrected within the first few weeks after birth, and if there is an associated cleft in the anterior alveolar process this should be closed before the lip is sutured. Early closure of the lip will improve the appearance of the face and insure proper facial development and contour. The best time at which to operate on the palate is between the ages of 6 and 18 months, at this age there is more available tissue for the closure, the palate tissues are better developed and shock is apt to be somewhat less severe. In order to avoid defective articulation the palate should be closed before the child begins to speak. Early correction prevents also many complications frequently dependent upon an open palate.

The details of the pre-operative and postoperative care are extremely important. If the child's nutrition is poor or if he has rickets, secondary anemia

an upper respiratory or middle ear infect on infected tonsils, adenoids or decayed teeth, the operation should be postponed. The patient should be in the hospital at least twenty-four hours before the operation. In the author's cases, neosilol or argyrol 25 per cent is dropped in each nostril every four to six hours, and if work is to be or has been done on the palate, the latter is sprayed with a warm 2 per cent boric solution after each feeding. This routine is begun on the patient's admission to the hospital and continued after operation until healing is complete. After operation the baby's hands are secured so that the fingers cannot be placed in the mouth. Retention enemas of 6 to 10 oz. of water containing 1 per cent sodium chloride and 4 per cent glucose are given several times during the first twenty-four hours after operation. Feedings are given with a baby feeder or teaspoon for two weeks, breast or bottle feeding then being begun.

For the correction of harelip, the author prefers a modification of the Rose operation. A good result requires: (1) accurate approximation of the mucocutaneous border of the lip, (2) a lip free from tension after suturing, (3) slight overcorrection of the mucosa at the point of suture, and (4) correction of the accompanying deformity of the nose.

The repair of a cleft palate is based on the principle of the Langenbeck operation. The important steps are: (1) thorough denudation of the adjacent margins of the cleft, (2) free mobilization of the mucoperiosteal flaps from the hard palate, (3) maintenance of good nutrition of the flaps, and (4) accurate approximation of the denuded margins of the cleft with interrupted fine wire sutures without tension. The author has used this technique in thirty-three cases without a death or serious post-operative complication.

GEORGE R. McCLURE, M.D.

Farr R. E. Some Shortcomings in the Surgery of Cleft Lip and Palate with Suggestive Suggestions for Meeting Them. M. J. 1927 x 7

Farr is of the opinion that the results of the treatment of cleft lip and palate will not be materially improved until the principle of plastic surgery are taught in every medical school and every community is supplied with surgeons properly trained for the work.

The high mortality in such cases is attributed to the fact that children with these defects are not normally robust. Many children with cleft lip and palate do not reach maturity even when they are not subjected to operation.

In discussing the technique of operation, Farr states that the *lipopharynx* may be done in two stages. Postoperative manual stretching of the lip will relieve tension, increase the redundancy of the lip and prevent its thinning out. The nasal septum may be divided at its base to allow proper elevation of the nasal tip. The prolabium may be used as a prolongation of the columella rather than a portion of the newly constructed lip. Lip tension should

Richter H M Thyroidectomy *J Am M Ass*  
1927 lxxxviii 883

Richter emphasizes the splendid results of adequate thyroid surgery in the treatment of thyrotoxicosis. Residual symptoms that is those of the original disease persisting after operation have their origin in residual thyroid tissue. They signify inadequate surgery and demand removal of more thyroid tissue at a second operation. Non-operative treatment of toxic goiter (as well as inadequate surgery) have not produced the high percentage of cures obtained by radical surgery. The author decries the use of such phrases as a feeling of well being or return to economic activity in the evaluation of the effect of treatment.

Richter operates on every patient with toxic goiter either exophthalmic or adenomatous who consents. The preliminary preparation ranges from ten to twenty days and includes the administration of from 30 to 45 minims of Lugol's solution daily. The author stresses the fact that the use of iodine is not to be continued indefinitely. It is directed mainly to preparing the patient for operation. Cardiac decompensation and fibrillation while serious are not contra indications to surgery.

The results obtained in 100 recent consecutive cases are analyzed. Seventy six were primary hyperplastic goiters and twenty four secondarily toxic (adenomatous) goiters. The average basal metabolic rate before treatment other than rest diet and the use of sedatives for a few days was 50.5+. After operation ninety four of the 100 patients showed an immediate fall in the basal metabolic rate below 15+. The average rate of these ninety four patients was 16+. Four of the six who had a persistently raised postoperative rate averaged 40+. These were re-operated upon a mass of thyroid tissue being removed. The metabolism rates then fell to normal in all averaging 50. Following re-operation in a fifth case the metabolic rate dropped to 2+. Therefore 99 of the 100 patients studied were relieved of hyperthyroidism.

The author reports also the late results as determined by Elliott in the cases of patients operated on by Kanaev Koch and the author. In approximately 93 per cent of the old cases there was freedom from all evidence of thyrotoxicosis. In 7 per cent there was a recurrence of some degree of intoxication or some degree of hypothyroidism. A study of the condition of the 93 per cent of the patients who were free from evidence of toxic symptoms showed that of those who were operated on in the early stages of the disease practically none had any evidence of permanent secondary pathological change whereas of those who were operated on after a long period of intoxication the proportion showing permanent secondary pathological change mainly cardiac was remarkably high more than 50 per cent.

Accidents peculiar to thyroid surgery are discussed briefly. There was some evidence of hypothyroidism in several patients who show a metabolic rate below -10 shortly after operation. All but two

or three quickly reacted the metabolism returning to normal. The results are still too recent for a final statement. Temporary injury of the recurrent laryngeal nerve occurred a number of times. Usually this cleared up in from one to three months without any after effects. Serious parathyroid injury did not occur in the present series although in another series of 100 cases there was some evidence of parathyroid injury in 14 per cent.

JACOB M. MORA M.D.

John H J Chronic Tetany *A N S J* 1927  
lxxxv 410

Among the factors which make the treatment of chronic tetany a complex problem is the very considerable psychic disturbance with which it is associated. This factor is very difficult to evaluate and to eliminate. The author cites two cases in which injections of saline solution were substituted for parathormone injections with complete relief from the tetany over a long period of time. In one however true tetany recurred in a severe form and subsided only after large doses of the parathyroid hormone. Having experienced severe attacks of tetany it is not strange that these patients live in dread of their recurrence and the uncertainty as to when they will recur wears down control and leads to the development of the psychic factor. The picture is further complicated by the fact that the serum calcium content in chronic tetany is not exceedingly low and the symptoms do not correspond to the variations in the calcium level. In some cases the patient may feel best when the serum calcium is low and may have an attack of tetany when the serum calcium is not far from the normal level. In a series of normal persons the serum calcium content was found to lie between 10.5 and 11 mgm per 100 c cm. In definite cases of tetany the serum calcium ran as low as 4.5 mgm and in chronic tetany it was usually 8 mgm or more per 100 c cm.

To determine what subjective manifestations accompany the parathormone injections the author allowed himself to be injected intravenously on several occasions. He experienced ringing in the ears tingling in the finger tips slight chilling and generalized pains which resembled those associated with the onset of a severe cold. On one occasion a slight rise in the serum calcium level was followed by a transient but marked fall. This phenomenon was not observed in the other experiments.

LEO M. ZIMMERMAN M.D.

Fletcher H Demonstration of the Principles of Talking and Hearing with Application to Radio *Ann Ott Rhn & Laryng* 1927  
xxxv 1

Fletcher discusses the physical characteristics of speech the changes occurring in the sound waves during their transmission in the air the interpretation by the ear when the sound waves are changed in shape or magnitude the mechanism of hearing

the bedside and discusses the use and abuse of iodine medication

The thyroid gland plays an important rôle in physiological and psychological life. It has a good deal to do with the whipping-up process. Patients with an effort syndrome often present mild symptoms of hyperthyroidism. The treatment in such cases is concerned not with the thyroid but with the readjustment of the patient and the relief of the whipping-up process.

Infection often simulates hyperthyroidism. In such cases the treatment should be directed against the infection rather than against the thyroid.

Goiters may be classified as (1) endemic goiters due to iodine deficiency (2) colloid goiters associated with some other condition such as childbirth, the menopause, etc. (3) non-toxic goiters with normal thyroid activity (4) toxic adenoma with progressive hyperthyroidism and permanent tissue damage (5) exophthalmic goiter and (6) thyrocardiac goiter which causes principally heart symptoms and is often mistaken for heart failure. In all cases of auricular fibrillation a basal metabolism examination should be made.

As the result of the use of iodine in goiter many cases of induced hyperthyroidism are seen. In toxic cases the administration of iodine is indicated only to prepare the patient for operation.

The treatment of severe hyperthyroidism is purely surgical. In properly chosen cases it should be as radical as possible because deficiency symptoms are easily controlled whereas inadequate removal of the gland may necessitate repeated operations.

F. S. MODERN, M.D.

Hueck H. The Question of the Parallelism Between the Clinical and Histological Pictures of Goiter (E. n. Be. t. a. g. a. F. g. d. Pa. all. l. m. s. w. s. ch. a. k. l. u. m. h. e. m. u. d. h. s. t. l. g. i. h. e. m. B. l. d. d. S. r. m. j. D. t. s. k. z. i. c. h. f. C. h. o. b. c. v. i. 66)

Since the beginning of the year 1924 a careful study has been made in all of the author's cases of goiter to determine how far the clinical and histological pictures of the condition agree. In the material so studied typical cases predominated. The basis of the thyrotoxicosis is not always parallel with the histological picture. Of fifteen goiters without thyrotoxic symptoms which were operated upon ten were diffuse non-proliferating macrofollicular colloid goiters and five were proliferating goiters.

In the ten cases of hyperthyroidism the cases with distinct symptoms of thyrotoxicosis without marked exophthalmos but with an increase of from 10 to 35 per cent in the basal metabolism. The goiters were all macrofollicular colloid strumata and all except one showed with more or less marked epithelial proliferation.

Also among the cases of Basedow's disease which otherwise showed a typical clinical and histological picture there was one case which differed radically. Clinically this was a typical case of moderately severe Basedow's disease. Only the right lobe of the

thyroid gland was enlarged. Even macroscopically it was seen to be very rich in colloid. There were several nodes. Histologically it was a typical colloid struma. The follicles were mostly of moderate size but there were numerous sections with small follicles. There was no epithelial proliferation. All the follicles contained highly colored colloid. There was no round cell infiltration. Proliferation was present in only two of the small nodes. The histological diagnosis was struma diffusa et nodosa colloid macro et microfollicularis non proliferans. It was therefore one of the exceptional cases in which histologically quiet struma gives the clinical picture of Basedow's disease. An explanation is difficult. Apparently it was not a case of thyrotoxic Basedow's disease but an enlargement of the thyroid could not be established by means of the roentgen ray and thyroidectomy was followed by a very good result.

An explanation might be afforded by the assumption that the thyroid gland was not the first organ to become diseased but was the chief organ involved in the sympathetic and parasympathetic nervous systems. The author believes that in spite of the absence of typical histological changes the enlargement of the thyroid was a manifestation of a genetically very complex condition. Hueck H. (Z.)

Goodall J. S. and Roge S. L. The Nature of the Thyrotoxic Myocarditis. *Lo. J.* 1927, cxxi, 456.

The authors present electrocardiographic and pathological evidence in support of the view that sustained thyrotoxicosis ultimately results in definite myocardial degeneration.

The electrocardiogram shows that in thyrotoxicosis the P wave which normally is smaller than the T wave reaches the level of the T wave. This demonstrates that either the auricular contraction is relatively greater or the contractions in the region of the ventricular base are smaller. In either case the alteration indicates as it does auricular overaction or impairment of function in the region of the ventricular base points to some change in the cardiac musculature. The P-R interval which is normally about 0.1 second is often increased in thyrotoxicosis thus indicating a delay of conduction in the bundle of His.

The pathological changes in the heart are summarized as follows:

1. Hyaline degeneration and necrosis of many bundles of fibers scattered throughout the myocardium. The necrotic bundles take the stain poorly. They are swollen and ill defined. In some of them the nuclei are often absent.

2. A migration of evidently phagocytic cells in the direction of certain of the necrotic fibers doubtless to promote the absorption. This infiltration while very marked in some places is absent in others.

3. Dilated capillaries choked with endothelial cells which are infiltrating certain necrotic areas in their vicinity. J. Conn. B. L. V. A. M. D.

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

Vastine J H and Kinney K H The Pineal Shadow as an Aid in the Localization of Brain Tumor 1 J R 15 of 1927 xvi 320

In 616 examinations of the skull the pineal gland was found sufficiently calcified to cast a shadow in 47.9 per cent. In the cases of patients over 20 years of age it was visualized in 59.2 per cent.

The normal range of the position of the pineal gland was determined by a study of 200 films showing calcification made in the cases of patients without intracranial lesions. Measurements were made (1) from the most distant point of the inner table of the frontal bone (2) from the most distant point of the inner table of the occiput (3) from the inner table of the vault and (4) from the level of the base of the skull. By plotting the measurements on cross section paper the normal anteroposterior and vertical variations were determined.

Next 53 cases of enlarged pineal gland in tumor cases that showed calcification were studied. The location of the tumor, number of cases and displacement of the shadow were as follows:

Loc	Number of Cases	Displacement of Shadow
Frontal	35	25
Temporal	15	6
Parietal	2	10
Occipital	9	4
Subtentorial	44	12
Posterior	9	3
	133	60

It was found that the shadow of the gland was displaced in 51 per cent of the cases of glioma, 57 per cent of the meningioma, 22 per cent of those of acoustic neuroma and 20 per cent of the epiphyseal tumor. Hydrocephalus was observed to displace the gland in 13 per cent of the cases and intracranial hemorrhage in two cases.

CHALKLEY H H and OCKENFORD

## SPINAL CORD AND ITS COVERINGS

Armstrong D The Surgery of the Spinal Cord and Its Membranes 1 1904 43

A moment ago the surgery of the spinal cord from the time of Hippocrates to date. During the early centuries there was a bitter controversy as to the justification of surgery on the cord and the few operations that were done were mainly trephinations of the spine which were bloody, dangerous and

formidable and followed as a rule by unfavorable results. However from time to time successful operations were reported and after 1865 sentiment gradually changed in favor of surgery. In 1885 MacCawen decompressed a dorsal fracture of eight weeks standing with complete cure of the paraplegia. This led to further attempts the field of spinal surgery then being widened to include Pott's disease.

The surgery of spinal cord tumors began with the successful removal of a growth in 1883 by MacCawen and in 1887 by Horsley. Horsley collected fifty cases in 1887 and Mill and Lloyd later collected an equal number. Subsequently the procedure gradually became less formidable and gave increasingly better results.

Spinal puncture was introduced by Corning in 1885 and popularized by Quincke in 1891. It was first used for decompression but now is done to show spinal block and for study of the cerebrospinal fluid. Cisternal puncture introduced clinically by Wogeforth, Ayer and Essick in 1910 has become a valuable adjunct to spinal puncture in the diagnosis of block and the treatment of meningitis. The loculation syndrome incorrectly called From's syndrome is well known as characteristic of spinal block and is probably due to the engorgement of the vessels in the spinal canal.

Pneumomyelography a development from Dandy's ventriculography is used as an adjunct to other methods of localization. When a block is present no pain is felt in the head but there may be root pains at the site of the obstruction. The procedure is not without risks and may be misleading.

In 1921 Sicard and Forestier popularized the use of lipiodol an oily preparation opaque to the X-rays which has been widely employed in the spinal canal to localize obstructions. The lipiodol ascendant preparation which is lighter than the spinal fluid is injected below but its radiopacity is greatly reduced and it tends to adhere to the meninges and may therefore give confusing results. Lipiodol, a heavy oil is injected into the cistern and outlines from above. The technique is described in detail. The oil must be clear and transparent. It is injected more easily if it is warmed. Care must be taken not to inject air bubbles. There is no doubt that lipiodol is irritating to the meninges in some cases troublesome sequelae such as pain, hyperreflexia, headache, nausea and pleocytosis occur. It is generally agreed that the X-rays may be misleading and that medullary compression is not definitely excluded when the X-ray picture made with lipiodol is negative. At times the neurological and lipiodol levels do not correspond. There are

and the effect on the pitch and quality of musical tones produced by faulty transmission of the sound to the ear

Speech is produced by the passage of the air from the lungs through the vocal cords, tongue, lips, and cavities of the nose and throat. All sounds except p, t, ch, k, f, s, th, and sh, which are produced by vibrations of the mouth, are set up by vibrations of the vocal cords.

An artificial larynx has been constructed which enables patients with a tracheotomy to talk. It consists of a whistle and a rubber tube through which the sound is directed into the mouth.

The speech sounds are transmitted through the air by pressure waves. The pitch and intensity vary constantly. Consequently the transmitting system must be free from selectivity. Free air fulfills these requirements, but air confined in closed rooms and chambers is a system of high selectivity which distorts sound waves seriously before they reach the ear.

The ear consists of the outer ear, middle ear, and inner ear. The air waves are transmitted through a small bone of the middle ear to the oval window and thence to a fluid in the cochlea. Sounds with a high frequency of about 5,000 stimulate the nerve endings of the auditory nerve within 5 mm. around the oval window.

The inner ear is non-linear in response and acts like an overloaded vacuum tube. When a pure loud tone reaches the outer ear, the inner ear responds with the loud tone and its harmonics. Another loud pure tone reaching the outer ear can stimulate the inner ear only if it is of sufficiently great intensity to outdo the first tone. This is why certain

persons are temporarily deafened by noise. If a pure tone produces harmonics in the inner ear, then with a musical tone which already has harmonics, the situation is not materially altered. However, it is the relative intensity of the harmonics which determines the sound quality. If the upper harmonics are eliminated, the sound changes quality, and if the lower harmonics are eliminated, the sound changes quality but not pitch. Consequently the quality of speech or music depends upon the intensity with which it reaches the ear. F. S. Moore, M.D.

Furstenburg, A. C. Clinical Aspects of Laryngeal Cancer. *J. Michigan State Med. Soc.* 97: 571-94.

This article is based on 100 consecutive cases of cancer of the larynx examined in the Department of Otolaryngology of the University Hospital, Ann Arbor, Michigan.

Seventy-five per cent of the patients were between the ages of 50 and 65 years. The youngest patient was 29 and the oldest 84 years old. Laryngeal carcinoma is about seven times as common in males as in females. Eighty per cent of the patients appeared for examination six months or more after the initial symptom, hoarseness. Purulent and blood-stained sputum, dyspnea, and dysphagia were late symptoms of the disease. Metastases usually occurred late. X-ray and radium treatment of laryngeal cancer has been very discouraging, and thyrotomy and laryngotomy with subsequent resection of the tissue involved have not given satisfactory results. Laryngectomy, therefore, remains the method of choice for laryngeal neoplasms demanding radical surgical interference. J. Edgar Carter, M.D.

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

Dalind L M Untreated Cancer of the Breast  
S J G J c & Obi 97 xlv 64

The author reviews 100 untreated cases of cancer of the breast. Ninety-eight of the patients were women. The average duration of life after the appearance of the first symptom was forty and one-half months. The shortest survival was three months. Twenty-one per cent of the patients died during the first year, 20 per cent during the second year and 19 per cent during the third year. Twenty-two per cent were alive after five years, 9 per cent after seven years and 5 per cent at the end of ten years. Lung or pleural metastasis was found in eighteen cases, involvement of the liver in eleven cases and bone metastasis in 15 per cent. In twenty-two cases the arm became swollen during the course of the disease.

These cases are compared with sixty-six cases treated by operation alone or followed by X-ray treatment. In some the glands were involved but in others there was no gland involvement. The data for the two cases are collected by Greenough. Of the second group of patients 60 per cent were alive and free from the disease at the end of three years, 4 per cent at the end of five years and 35 per cent at the end of seven years.

JOSEPH K. KARAT, M.D.

Carnett J B. Sci. Hou. Carcinoma of the Breast with Extensive Metastases. S J G J c 1m

Carnett reports the case of a 29-year-old colored woman who had first noted a small hard lump in the right breast above the nipple in 1920. One year later the right breast was amputated for carcinoma. In April 1924 the X-ray showed metastatic deposits in the pelvic bones. The patient felt well until September 1925 when she developed a sore throat, a cough and pain throughout the chest. A thorough clinical examination revealed only two small pea-sized nodules under the skin of the left breast but the X-ray showed carcinomatous metastases in all of the bones of the body except those distal to the knees and elbows. The bony involvement grew and the vertebrae crumpled. Pathologic fracture occurred in the humerus and femur but without spontaneously. Root pains in the region of the twelfth dorsal vertebra did not respond to radiation. Both radius and tibia became involved.

It is generally agreed that bone metastasis occurs in the subcutaneous by direct extension but it is undecided whether distant metastases occur through the blood stream or by way of the lymphatics.

Handley thought the humerus was entered by way of the superficial lymphatics at the deltoid insertion because pathological fractures occurred most frequently in this area but Carnett has several roentgenograms showing invasion of the head of the humerus, the scapula and the clavicle simultaneously before involvement of the deltoid region. Carnett believes that the axillary nodes become invaded first perhaps by lymphatic embolism and that permeation radiates from these nodes to the bones of the shoulder underneath the deep fascia. In involvement of the femur the earliest invasion may be in the head and neck.

Cancer spread down the lymphatics of the posterior abdominal wall and extends into the pelvis long before subcutaneous permeation nodules reach the upper abdomen. From the interior of the pelvis it invades the femur. The permeation may reach the lymph nodes at the saphenous opening by this route before any other distant extension of breast cancer is apparent. Transplantation of cancer cells may occur within the abdomen or thorax but the great majority of metastases occur by permeation.

HARRY C. SALTZSTEIN, M.D.

Handley W S. The Origin of Bone Deposits in Breast Cancer. S J G J c 1m 197 11

In 1903 Handley studied bone metastases in seventy-three of 329 cases of cancer of the breast which came to autopsy. He concluded that bone metastasis occurs chiefly along the deep fasciae beneath the skin and by lymphatic permeation rather than by blood embolism.

He now agrees with Carnett that chains of infected glands can often be traced through the diaphragm along the aorta and its branches to the groin and that retrograde permeation of the trunk lymphatics is a more rapid process than permeation of the small lymphatics of the fascial plexus. The femur is reached by the intra-abdominal extension and the humerus by permeation along the tributaries of the axillary glands. Handley is still of the opinion however that occasionally cancer cells may reach the humerus by the facial route. The freedom from metastasis of distal bones is only relative as in late cases deposits can be recognized below the elbow and knee.

HARRY C. SALTZSTEIN, M.D.

## TRACHEA LUNGS AND PLEURA

Pritchard S. Whyte B. and Gordon J. K. M. Conclusions Regarding the Technique Following 1000 Intratracheal Injections of Iodized Oil in Adults. Rad 257 192 11 104

Of the various methods that have been used to inject iodized oil into the bronchial tree the authors

several mechanical factors responsible for this discrepancy. The use of hypoderm is probably justifiable only when localization is impossible by other means.

In conclusion the author emphasizes the importance of a careful neurological examination and states that in his hospital spinal cord tumors have been correctly localized by this means in 98 per cent of the cases.

ALBERT S. CRAWFORD, M.D.

### PERIPHERAL NERVES

Bunnell S. Surgery of the Nerves of the Hand  
*Surg Gynec & Obst* 9:7 11 145

The author has done 103 sutures of nerves of the hand and fingers. The exceedingly good results he attributes to the fact that the nerves are either purely motor or purely sensory and the regenerative power of the nervous system is greatest at the periphery.

In the hand the motor and sensory functions are of about equal importance and the loss of either or both in whole or in part may cause any degree of disability in a manual worker. In reconstructing deformed or atrophic fingers Bunnell first repairs the nerves and awaits good regeneration before proceeding with the plastic surgery. The average time for the return of function was seven months for the proximal part of the palm, three and two thirds

months for the distal part of the palm, almost three months for the proximal part of the fingers and one and a half months for the middle segments of the fingers. The rate seemed to be about the same in all nerves and not influenced by the length of the interval between the accident and the nerve repair. The state of nutrition of the hand was an important factor in the rate of regeneration. The order of the return of the different sensations and the phenomena of regeneration were the same as in the larger nerves elsewhere. Trophic changes disappeared and stereognosis usually returned within a year. There were six cases of nerve grafting. The results were successful in all. In several there were 6 or 7 in gaps in one such a gap was bridged after an interval of four years.

Of the different causes of nerve severance the most frequent were glass bottles, saw cuts and poorly placed surgical incisions. Surgical incisions on the fingers should be midlateral.

Tender amputation stumps were cured by neurectomy and injection of the cut end of the nerves with alcohol. The suturing was done with a No. 16 straight Kirby needle and the finest silk thread. The general principles of nerve surgery were rigidly observed.

Seventeen of the cases are reported briefly with diagrams showing the return to normal.

ALBERT S. CRAWFORD, M.D.



with a weaker solution introduced with a nebulizer to prevent this error HOWARD A. MCKNIGHT M.D.

Schlueter S A and Weidlein I F Postoperative Lung Abscess An Experimental Study *J. S. S.* 1927 XIV 457

Pathologically lung abscess is of two types (1) bronchiectatic and (2) extrabronchial or parenchymatous. The initial anatomical location of the infecting organisms determines the type that is to follow. Thus the first type originates in the air passages while the second begins in the parenchymatous tissues. Each type is dependent upon a separate and distinct mechanism by which bacteria are brought to the initial site for implantation. In the parenchymatous abscess this mechanism consists in the transmigration of bacteria to the lung through the blood stream while in the bronchiectatic type the bacteria are introduced by way of the air passages.

The type of lung abscess which develops as a sequel to operation possesses certain distinctive clinical characteristics which when interpreted in terms of a pathological process place it in the parenchymatous class with which no other than a hematogenous infection can be associated.

Postoperative lung abscess results from emboli produced by the dislodgment of an infected thrombus from the vessels at the site of operation. For this reason the authors give the following reasons:

1. Fatal postoperative pulmonary embolism is a clinical entity. This suggests the possible scattering from any wound of single or multiple emboli into the venous circulation.

2. Lung abscess frequently develops after operations in infected or potentially infected fields especially after operations on the nose and throat and the gastrointestinal tract. The pharynx and gastro-intestinal tract are mobile and thrombi are easily dislodged from them. Following operations on the brain in which the skull acts as splint the incidence of postoperative pulmonary complications is nil.

3. Lung abscess appears often after operations in which local anesthesia is used.

4. Postoperative pulmonary complications are not prevented by the constantly improved methods of administering general anesthetics.

5. The lower lobes are more frequently involved. This is explained by the greater volume of blood to these parts and by the more direct course of the pulmonary artery to the lower lobe.

6. Often there is a free period after the operation before the onset of the complication. If the aspiration mechanism were the causal factor the symptoms would appear early.

7. Pain in the chest frequently constitutes the initial symptom and the clinical course that follows is often severe until rupture and evacuation occur.

8. Typical lung abscess rarely develops after the lodgment of foreign bodies even deep in the air passages.

9. Attempts at the experimental production of lung abscess in animals by the introduction of infected material by transtracheal implantation or by aspiration have been unsuccessful.

10. Lung abscess can be produced easily by the intravenous injection of infected material.

The comparatively early formation of a lung abscess after an infected embolus has found lodgment and the rapid progress of the destructive lesion explain why the condition usually causes such grave clinical symptoms.

A reduction in the number of postoperative lung abscesses is possible but the condition can probably never be entirely eradicated. The best prophylactic measures consist in the prevention of infection in the operative field whenever possible the reduction of operative trauma to the minimum and the avoidance of mass ligation of tissues.

SAMUEL KAHN M.D.

Pool E H Closure of Abscess of the Lung by Muscle Transplant *J. S. S.* 1927 LXV 462

Pool reports the case of a man aged 6 years who was admitted to the New York Hospital in August 1921 with a diagnosis of incipient pulmonary tuberculosis. The sputum was negative. Soon after this date his tonsils were removed. He was admitted again in January 1926 with a diagnosis of lung abscess for which he was operated upon on February 4 with rib resection and tube drainage. Convalescence was uneventful. On April 1 1926 he was again admitted with a persistent sinus communicating with a bronchus.

On May 3 he was operated upon for the closure of the bronchial fistula. Under ether and ethylene anesthesia the skin and newly formed bone around the sinus were excised a cavity about the size of the index finger with soft friable walls being revealed. The incision was then extended along the lower margin of the pectoralis major and a strip of this muscle about 4 in long and twice as thick as the cavity was dissected free except for its outer end turned into the cavity and fixed by two chromic sutures at the outlet of the cavity. Along this strip a small drainage tube was placed to the bottom of the cavity and the wound sutured around it. There were no postoperative complications and the wound healed primarily.

In October 1926 the patient had gained 35 lbs was working and had no complaints. The X-ray showed no evidence of the previous cavity.

MARSHALL DAVISON M.D.

## ESOPHAGUS AND MEDIASTINUM

Moley J Cardiospasm *Lancet* 1927 CXL 431

The cause of cardiospasm is unknown. There is no well defined anatomical sphincter at the lower end of the esophagus and a physiological sphincter must be supposed from the symptoms of the condition. The author rejects all theories so far advanced to explain spasms of this circular muscle.

prefer the supraglottic method. They have found it to be more simple and more economical from the standpoint of time expense and labor than other methods and accompanied by few if any dangers. The need of securing the full confidence and cooperation of the patient at the time of the injection is emphasized. The patient should be assured that no operation is to be performed and no pain caused. The instruments kept within his view should be as few as possible.

The oil and the anesthetic solutions should be warm. The pharynx and larynx are sprayed with a 5 per cent solution of cocaine or butyn. When the patient feels a lump in the throat the oil can be injected safely.

If the lower bronchial trees are to be studied the injection is made with the patient in an upright position and leaning slightly toward the side to be injected. If the upper lung fields are to be studied the patient is placed on a tilting table in the recumbent position lying on the affected side. Immediately after the injection the table is tilted so that the patient's head is pointed downward at an angle of 45 degrees. This position is retained for about three minutes. About 20 c cm of oil are used for one injection.

The indications for the procedure are as follows: (1) cases of chronic cough associated with long standing infection in the upper respiratory tract particularly sinusitis; (2) cases of cough with purulent expectoration and a history of pneumonia or the inspiration of a foreign body; (3) cases of long standing cough with little or no expectoration and no history of frank pulmonary disease; (4) obtrusive cases of bronchiectasis; (5) cases of bronchial fistulae; and (6) as a therapeutic agent.

The contraindications are acute affections such as influenza, active tuberculosis, advanced pulmonary suppurations, recent hemothysis, and advanced circulatory complication such as angina pectoris, aneurysm, and cardiac decompensation. Slight untoward effects are noted in only six of 1,000 injections. CHARLES H. HECOCK, M.D.

Ballou D. H. and Ballou H. C. The Effect of Injection of Lipiodol and the Rate of Its Disappearance in Normal and Diseased Lungs. *C. de M. S. S.* 1925, 41.

On the basis of roentgenoscopic intrapulmonary injections of lipiodol the authors draw the following conclusions:

1. The injection of lipiodol is not harmful to the healthy lung and produces an immediate untoward reaction in man or animal. The method is useful for the healthy lung that in the diseased lung. The rate of true elimination in the normal and pathological lung is influenced by the lipiodol activity of the lung. The disappearance of the lipiodol from the bronchial tree is dependent upon cough, posture, and other factors.

2. Lipiodol produces no immediate reaction in emphysema, putrid bronchitis, or congestion.

or most cases of non-specific asthma. Its persistence and rate of disappearance in these conditions are the same as in the normal lung.

3. In non-tuberculous abscess of the lung no immediate reaction has been noted following the injection of lipiodol by the bronchoscopic method. The lipiodol usually persists for a week or two and is not directly beneficial.

4. In bronchiectasis no immediate reactions have been observed following the injection of lipiodol. When the lipiodol remains entirely within the bronchi the dilations aided by cough may empty themselves very quickly, occur mainly in the first four hours. In bronchiectatic cavities with stasis the presence of lipiodol was still noted 6 months after the injection. The rate of disappearance of the lipiodol is influenced by the position of the bronchiectatic cavity, the size of the dilatation, the caliber and flexibility or rigidity of the bronchial tubes, and the nature of the mucous membrane. In bronchiectasis lipiodol is not infrequently beneficial, lessening the cough and diminishing expectoration.

5. In primary carcinoma of the bronchus with abscess lipiodol persists for two months without producing any ill effects.

6. In pulmonary tuberculosis the expectorative and tuberculous pneumonias cause edematous reaction and its persistence produces ill effects. In these conditions the injections are contraindicated. Select cases of the sigmoid type of pulmonary tuberculosis are usually suitable for injection and do not show any reaction. The persistence of lipiodol in the lungs free from abscess or bronchiectasis is about the same as in the normal lung.

7. In pulmonary fistulae and in chronic disease of the pleura lipiodol produces no reaction, a direct persistence for any length of time. The presence of empyema, pneumothorax, or an atheroid diaphragm with the respiratory excursion, the rate of disappearance of the lipiodol is delayed.

8. Roentgenograms show that over 50 per cent of the patients all showed some of the lipiodol. No iodism was noted.

9. Roentgenologically the persistence of lipiodol in the lung may resemble tuberculous pneumonia or an empyema or military tuberculosis.

10. In the healthy lung of the type of rabbits lipiodol causes no immediate untoward reaction and its persistence produces an inflammatory lesion. Its persistence resembles the mal and the disease of the lung in all the other human conditions. MAX H. HECOCK, M.D.

Moshe H. P. F. The Lung Abscess and Lipiodol. *J. I. P. U.*

The therapeutic treatment of lung abscess by the injection of 150 cc of lipiodol into the lung produced the picture of a typical lung abscess. Saturation of the lung was established by roentgen pictures. Experiments are now being carried on.

# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

South C T Strangulated Hernia with Subsequent Complications *J Med Cincinnati* 1917 1 65

The patient whose case is reported was a man 45 years of age who had a strangulated complete inguinal hernia on the left side. Operation performed at the end of eighteen hours was followed by a good result. The patient was out of bed two and one half weeks later. In the next five weeks he had three attacks of severe abdominal pain. During the third attack a diagnosis of intestinal obstruction was made. At operation the left lower quadrant was very rigid and intestinal adhesions were found extending over the entire area from the midline to the site of the former operation. After careful but difficult dissection a small abscess down in the coils of the intestines was encountered. On further freeing of the intestines Souther found that a loop of bowel had been completely cut across. The distal and proximal ends were located and delivered into the wound. The distal end was as completely sealed off as if it had been done by surgery. The proximal end was sealed off with the excision of a small sinus no larger than a match. There were no free feces in the cavity and the area of the intestines primarily involved in the rupture was in fair condition though still somewhat edematous. The proximal end of the bowel as grasped diagonally with a rubber-covered clamp and the last 2 in removed. The distal end of the walled-off bowel was grasped in the same manner and cut across to make a fresh area for suturing. A direct end-to-end anastomosis of the bowel was done with two rows of sutures catgut being used for the mucous membrane and silk for the seromuscular coat. A small split tube was inserted for drainage. The midline incision was closed around a drainage tube by tier suture according to the usual method.

The convalescence was smooth. A small fecal fistula closed spontaneously in three weeks. The patient went home on the twenty fourth day.

CARL R STEINKE M D

Seelig M G Fundamentl Principles Underlying the Operative Cure of Inguinal Hernia *J Am M As* 1917 LXXXVIII 5 9

In Seelig's opinion the modern operation for inguinal hernia is not as satisfactory as is generally believed. Two very important factors in the prevention of recurrence are high ligation of the sac and perfect wound healing. The Andrews technique and the importance of restoring the transversalis fascia when it can be found are discussed. If the transversalis fascia cannot be found one of the three following methods should be employed to

obtain fascia to fascia closure (1) the method of Andrews (2) closure of the hernia defect with living sutures according to the method of Gallie and (3) the use of living sutures according to the method of McArthur.

In the cases of children and muscular young adults with an oblique hernia having a narrow necked sac the surgeon may feel a distinct sense of assurance if he has merely accomplished a high ligation of the sac. However in addition to this he should always suture the outer flap of the external oblique muscle to Poupart's ligament. If the edges of the transversalis fascia are available their approximation to Poupart's ligament will give additional assurance. If the hernia is large or if it is of the direct variety high ligation of the sac alone is not means a reliable guarantee against recurrence. Under such circumstances the fascia transversalis should be carefully sought for. If it is found and the defect in it is securely closed the major part of the cure has been accomplished. If it is not found the conjoint tendon (when present) or the lower portion of the rectus sheath and the rectus muscles should be sutured to Poupart's ligament with a fascial strip. Under all circumstances the inner flap of the external oblique should next be sutured to Poupart's ligament with chromic gut and when possible the outer slip of the external oblique imbricated over this suture. The cord should be transplanted in all cases. When it is impossible to imbricate the outer flap of the external oblique this suture should be dispensed with the skin and subcutaneous suture being closed over the cord.

If the hernia is very large or has recurred several times it will be necessary to adopt the Gallie technique and weave the defect in the abdominal wall with numerous strips of fascia lata.

The article includes seven illustrations of technique.

CARL R STEINKE M D

Reynolds R P and Ferguson J A Echinococcal Cyst of the Omentum *C J in M As* 1917 X 1 28

Hydatid cysts of the omentum secondary to hydatid cysts elsewhere in the body are not common and primary hydatid cysts are very rare.

A man 29 years of age developed an abdominal tumor which was considered malignant because of the severity of the symptoms and associated cachexia. With the onset of intestinal obstruction laparotomy was done. This revealed hydatid cysts of the omentum. No other signs of involvement could be discovered. The patient has now remained well for over fifteen months. In the author's opinion this was a case of primary hydatid cysts of the omentum.

WILLIAM E SHACKLETON M D

The diagnosis is made in part from the clinical history since the absence of a history of corrosive poisoning will eliminate the ordinary fibrous stricture and long duration of the symptoms greater difficulty in the swallowing of fluids as compared with solids and the age of the patient will often help to exclude carcinoma. The roentgenographic appearance is characteristic.

The treatment must be palliative. The introduction by Hurst of a mercury filled rubber tube is an advance in the treatment. The tube should be passed first by the surgeon under the fluorescent screen. The patient may then pass it himself at first before each meal and then at such gradually increasing intervals as necessary.

The best operative procedure is the Mikulicz method of performing gastrotomy and dilating the cardia with the finger. This is much safer than cesophagostomy.

HOWARD A. McKNIGHT, M.D.

### MISCELLANEOUS

Hedblom C. A. and Head J. R. On the Use of Lipiodol in Relation to Thoracic Surgery. *A. S. G. Q. J. L. S.* 1944

The authors review briefly the history of attempts to introduce contrast media into the bronchial tree and cite the various objections that have been raised to all such media except iodized oil. Lipiodol introduced by Sicard and Forestier in 1921. The use of the latter they consider one of the outstanding advances in the diagnosis of obscure pulmonary conditions. They have found lipiodol of the greatest value in bronchiectasis as it permits a certain and accurate diagnosis not only of the nature but also the extent, type and distribution of the condition. Its use is frequently the only means of proving that the lesion is unilateral which is a prerequisite to surgical interference.

In lung abscess the authors' experience has been the same as that of Ballou who has frequently experienced difficulty in getting the oil to flow into the cavities and has noted the frequency of bronchiectasis secondary to abscess. The authors have used lipiodol routinely following operations for abscess to determine the possible presence of such a residual bronchiectasis.

In chronic empyema it has been found of great value in demonstrating the extent and location of the cavities and the presence, size and location of bronchial fistulae communicating with them. For this purpose it is superior to all other contrast media because it is non-irritating to the bronchi.

In pulmonary tuberculosis the authors have used it with hesitation, fearing that it might activate the process. Only when the information to be derived seemed especially necessary has it been injected in these cases and then only in the chronic fibroid types. In the latter no ill effects have been noted.

The oil, a mixture of 40 per cent metallic iodine in poppy seed oil, is non-irritating to the tissues and can be introduced into the trachea and air spaces without inducing cough or causing harmful effects. It can be introduced into the trachea in a number of different ways. The technique of injection through the cricothyroid membrane, the method with which the authors have had the greatest experience, is described in detail. The oil is injected through an ordinary No. 18 Luer needle from a 20-cm. syringe. The skin above the cricoid cartilage is anesthetized with a few drops of novocaine and the needle attached to the syringe then slipped over the top of the cricoid into the trachea. No preliminary anesthetization of the tracheal mucous membrane is necessary. The oil is injected in amounts ranging from 10 to 40 c.c.m. and by the patient's position is made to flow by gravity into the portion of the lung to be examined. In over 500 injections made by the authors there have been no serious complications.

During the period of incomplete gastric tetanus which may occur during hunger several changes were observed including circular contractions of the antrum a general shortening of the stomach and a wave distribution at times suggesting peristaltic activity.

Rhythmic changes in the fundus described by certain physiologists as the cause of the tonus changes were not observed. These tonus variations appear to be due to partially relaxed contraction waves occurring for the most part in the lower portion of the stomach.

ADOLPH HARTZ, M.D.

Gliffin S D Pyle c Obstruction in Infants Ok  
Sl 1 M J 19 7 3

The author cites the work of several investigators on the subject of pyloric obstruction in infants. Opinions differ as to the cause and mechanism of the condition. The obstruction has been attributed to (1) congenital hypertrophy of the pyloric muscle, (2) spasmodic closure of the pylorus and (3) a combination of hypertrophy and spasm of the muscle. Most authorities agree that a true hypertrophy is present but there is disagreement as to its origin.

The microscopic pathology of pyloric stenosis consists in a hyperplasia of the unstriated muscle cell of the circular coat with no increase in the connective tissue. Closely the pylorus appears as a cartilaginous rounded olive-shaped tumor mass covered by normal peritoneum which is sharply demarcated from the dilated stomach above and the empty duodenum below. From the duodenal side it resembles the vaginal aspect of the cervix. When the tumor is cut down upon at operation the resultant angle formed by the mucosa of the duodenum must be avoided to prevent opening of the duodenum.

The outstanding symptoms—persistent projectile vomiting, intractable peritaltic stomach waves, obstinate constipation, marked loss of weight and at times a palpable pyloric tumor—are discussed in detail.

It seemed more important to the author to determine the degree of obstruction than to attempt to differentiate between stenosis and pyloric spasm. The degree of obstruction can be determined in most cases from the weight trend, the amount of stool passed, the quantity of vomitus, and the amount of gastric retention recorded by the passage of a catheter.

In the diagnosis the condition must be differentiated from duodenal obstruction with the vomiting of bile due to the peritoneal defects such as trans duodenal bands. A short hepatoduodenal ligament, a short mesentery or congenital narrowing of the pyloric lumen (epiphloporosis) are characteristic vomiting unchanged for long periods frequently during feeding. Other causes of vomiting at this early stage are indigestion due to improper feeding or food intolerance, the allowing of maternal discharge toxæmia in the mother, infection and sepsis of the newborn, syphilis and disturbances of the central nervous system.

Treatment whether medical or surgical should be instituted early before the infant becomes marantic. Medical treatment can be continued if the child shows a normal gain and if the retention of food is not too great. Surgical treatment should be instituted if medical care is of no avail.

In the discussion of the medical treatment the value of breast milk, replenishing of the tissues with fluids, thick cereal feedings, refeedings, stomach lavage before meals and the administration of atropine in small doses is emphasized.

The operation of choice is that devised by Rammstedt. The author prefers local anesthesia. Emphasis is placed on the pre-operative routine of pushing fluids and sodium bicarbonate and glucose solutions for at least twenty four hours before the operation. The postoperative treatment is important. It consists in pushing fluids and the use of glucose per rectum and for the first feedings. Recognized pediatric principles of feeding should be applied.

Giffin reviews thirty-four cases. Of the sixteen patients who received medical treatment fourteen were cured, one died and one was not benefited. Of the eighteen who received surgical treatment five died. The causes of death were marasmus and shock in two cases and peritonitis, double mastoiditis, and congenital syphilis in one case each.

I EDWIN FIRKPATRICK M D

Loewenberg W The Bactericidal Action of Gas  
tric Juice Free from Hydrochloric Acid (Ueb  
b t r i d e W k u g d e s S a l z a u r f e M a g  
s a f e t ) K l W l h o 6 1868

The author cites his previous investigations which indicated that the duodenal secretion soon kills inoculated micro-organisms such as colon bacilli, enterococci and streptococcus viridans. In this article he reports experiments which indicate that the gastric juice also has a bactericidal effect independent of its hydrochloric acid content. Previously he established clinically that the absence of hydrochloric acid from the stomach does not necessarily mean that colon bacilli are present. On the other hand he states that he has never found colon bacilli in a stomach containing hydrochloric acid. In cases of ordinary uncomplicated gastritis vacua in colonic flora are often not to be found in the stomach. Neither are they in evidence in the absence of hydrochloric acid in cases of severe gastro-intestinal disturbances especially those due to infective processes in the intestinal tract.

In an examination of twelve specimens of gastric juice ranging in reaction from alkaline to neutral a distinct bactericidal effect upon colon bacilli was found in seven. The remaining five specimens were obtained from three cases of pernicious anemia, one case of cholecystitis and one case of disturbances due to adhesions following appendectomy. Of fourteen specimens of gastric juice tested with regard to their bactericidal properties following neutralization (litmus) a distinct bactericidal effect on colonies

**Basset A.** Serious Postoperative Intoxication from Ether Poured into an Encysted Focus of Tuberculous Peritonitis. Report of an Operation and Transfusion of Blood. *Recoery* (Int. cat. op. t. p. r. t. t. g. r. e. p. d. e. l. t. r. e. r. e. l. a. n. t. y. e. r. d. e. p. t. n. e. t. b. r. e. l. e. s. e. k. y. t. e. r. i. t. e. n. t. i. a. l. i. s. s. a. n. g. u. e. g. e. ) *B. H. J. M. S. c. l. a. d. j. r. 926* h. 54

In a laparotomy on a woman 23 years of age ether was poured into an encysted focus of tuberculous peritonitis. The operation was followed by symptoms of shock with a small rapid pulse and the vomiting of black vomitus. The author attributed these symptoms to acute intoxication of the liver from absorption of the ether. When the abdomen was re-opened a small quantity of the ether was found in the pocket. The sponging out of this ether seemed to cause slight improvement. After blood transfusion recovery was rapid. Basset concludes that great caution should be exercised in pouring ether into the abdominal cavity after operations.

In the discussion of Basset's report SALVE said that he believes there is no special danger in the use of ether in this way except after emergency operation on patients in a critical condition.

OKAIZAKI said that ether should never be used in this way in tuberculous peritonitis. In his opinion on the rapid recovery in Basset's case indicated that there was no serious lesion of the liver.

SCHEERMAN said that in commenting on the use of ether in the abdomen he had emphasized that the ether should be sponged out carefully before suture of the abdomen. Basset differed in leaving the ether in the pocket.

KLEIN said that he doubted whether the fluid found in the pocket at re-operation was ether as either would have evaporated before the second operation.

TIMPERLEY emphasized the value of lavage with ether in peritonitis and in general in all cases of pus in the abdominal cavity. He called attention to the fact that at first almost all cases of diffuse purulent peritonitis were fatal but after the introduction of wide drainage the mortality was reduced to 66 per cent and since the introduction of ether lavage it has been reduced to from 5 to 20 per cent. This result is that not more than from 150 to 200 ccm of ether should be used. He doubts whether the serious symptoms in Basset's case were due to the ether as tuberculous membranes absorb it slowly. He emphasized that the ether should be sponged out before the abdomen is closed.

CHEVRIER said that in his opinion the symptom in Basset's case were probably due to the absorption of ether into the circulation. He called attention to the fact that in intra-abdominal hyperreperfusion caused by vaporization of the ether in the closed cavity causes stasis and effusion of blood into the circulation. He believes it possible that if the patient was in the Trendelenburg position there was a slight retrograde flow which may have been caused by the pressure of the gas. In order to correct any torsion he advised the following: *tiens flat*

after the Trendelenburg position before he closes the abdomen. He suggested also that by careful action of the ether may have caused dilatation of the small intestinal vessels. He believes that ether lavage is valuable in cases of suppuration but a tuberculous is the only exposure of the viscera to the air and lavages with very hot physiological solution. In some cases this treatment may be supplemented by ultraviolet irradiation.

MATCLAIRE reported that several years ago he poured between 100 and 200 ccm of ether into the pouch of Douglas after an operation and at the end of three or four seconds respiration and the heart beat stopped and the patient could not be revived. Since then he has only sponged the pelvis with sponges wet with ether.

Basset replied to Chevrier that when he re-opened the abdomen seven hours after the operation he did not see any distention or other sign of abdominal hyperperfusion. He has often sutured the abdominal wall when the patient was in the Trendelenburg position and has never been aware of any unfavorable effect from it.

ADREY C. M. REA. M.D.

## GASTRO INTESTINAL TRACT

ELLEN D. The Anemia of Cancer of the Gastrointestinal Tract. Based on a Study of 187 Cases. *C. N. D. M. J. S. J. 1975* 37

In a study of 187 cases of cancer of the gastrointestinal tract the author found the lowest red blood counts and hemoglobin values in patients with cancer of the stomach and those with involvement of the pancreas and biliary tracts. This fact attributed to the persistent hemorrhage and the impairment of nutrition due to the gastric achylia in these cases.

The cases of cancer of the stomach superimposed upon an old ulcer showed a red cell count above the average.

Adenocarcinoma seemed to be associated with a more marked anemia than scirrhus or colloid cancer probably because of its greater tendency to cause ulceration.

Neither radiation therapy nor operation changed the degree of the anemia. P. C. W. SWEET, M.D.

M. L. C. L. and R. G. F. T. Hu. ger Pain. *J. R. S. J. 1975*

Regarding their own experimental investigation of hunger pain the authors briefly review the work of other investigators on this condition. In their own investigation the outline of the stomach was recorded on a roentgenogram made during hunger sensations with the stomach distended with an air-filled balloon. The findings are summarized as follows:

The primary or essential element in the painful hunger contraction appears to be a complete circular constriction in the lower third of the stomach. Contractions of the upper stomach may or may not occur simultaneously with this antral contraction.

The effect of surgical duodenal drainage was the automatic substitution of the jejunum for the duodenum. The regurgitation of alkali into the stomach was thereby precluded and the acid chyme from the stomach was emptied into a substitute duodenum which contained no alkaline bile and pancreatic juices for neutralization. Under such circumstances subacute and chronic ulcers formed at two sites: (1) in the intestine just distal to the pylorus at the point where the emptying acid chyme impinged directly on the mucosa, and (2) on the lesser curvature the part of the stomach receiving the most mechanical trauma during the emptying of the acid chyme. An analysis of the conditions present and the factors operating emphasized the importance of the chemical and mechanical factors in the etiology of chronic peptic ulcer.

*Roentgenological study of experimental chronic ulcer.* Twelve normal dogs were given opaque meal in the gastro-intestinal tract then being studied with the X-rays. The observations made in these examinations were similar to those made in the examination of human subjects. Following the study of the normal tract six of the dogs were studied for ulcer formation following surgical duodenal drainage. The ulcers were subacute and chronic and appeared as in the duodenum of man just distal to the pylorus. These were typical of the chronic type with deep craters. Roentgenograms of each were obtained. Two were subacute lesions suspected at fluoroscopic examination and not definitely shown in the roentgenograms. One was an acute ulcer and apparently developed and perforated suddenly after the last roentgen ray examination. In one of the chronic ulcers the healing process following gastro-enterostomy was observed.

By this series of investigations the feasibility of roentgenological study of experimental peptic ulcers was demonstrated.

Motor changes in the gastric musculature could not be detected as etiological factors in the production of the ulcers.

*The healing of experimental peptic ulcer after gastro-enterostomy.* In experiments on nine dogs the ulcers following the operation for surgical duodenal drainage were carefully measured at exploratory laparotomy and a gastro-enterostomy designed to empty the greater part of the gastric contents through the new stoma was then done.

At necropsy performed at various intervals after the gastro-enterostomy evidence of healing was present grossly and microscopically in all of the cases. In two experiments the ulcers healed entirely and in one experiment a deep chronic ulcer 1 cm in diameter and 0.5 cm deep healed almost completely in sixteen days following the gastro-enterostomy. The rate of healing was directly proportional to the size and chronicity of the ulcer and the length of time after the gastro-enterostomy. With the healing of the original ulcers new ulcers formed in the efferent loops of the gastro-enteric anastomoses.

The surgical duodenal drainage resulted in the shunting of the alkaline bile and pancreatic juices away from the stomach and the intestine into which they emptied. In the formation of chronic ulcers after the establishment of this drainage the presence of unneutralized acid chyme in the stomach and the force with which the highly acid contents emptying therefrom impinged directly on a relatively circumscribed area of the intestinal wall seemed to have an important part. Following gastro-enterostomy the main burden of emptying the stomach of its highly acid chyme was assumed by the efferent loop of the gastro-enteric stoma. New ulcers promptly developed at this site while the original ulcer relieved of its burden promptly healed. The probable bearing of the same factors on the etiology and treatment of chronic peptic ulcer in clinical cases is mentioned.

Kwartin B and Heyd C G Syphilitic Ulcerations of the Stomach. *Arch Surg* 1917 24: 566

Gastric syphilis is not frequent and its clinical and histological recognition by no means simple. The authors report three cases of peculiar ulcerations which resembled specific lesions but were later proved not to be.

The presence of a marked gastric deformity on roentgenological examination and its complete disappearance under anti-syphilitic treatment must be accepted *a priori* as evidence that the lesion is syphilitic but the authors contend that the deformity must be distinct such as an hourglass contraction and not just the defect in the outline of the gastric lumen that is associated with simple ulcer.

The histological pictures of tuberculosis and syphilis of the stomach simulate each other so frequently that the differential diagnosis is very difficult. Definite proof of syphilis is the presence of the spirochetes in the tissues.

EMIL C ROBITSEK M D

Olsson J and Pallin G The Roentgen Picture of Acute Invagination of the Intestine and the Possibility of Producing Disinvagination with the Aid of the Opaque Enema (Ueber das Bild der akuten Darminvagination bei Roentgenuntersuchung und ueber die Invagination mit Hilfe von Kontrastelementen). *Arch Surg* 1917 24: 37

The authors report four cases of intestinal intussusception in children in which characteristic roentgen pictures were obtained by the use of opaque enemas. A central non-filled area in the intestinal lumen corresponded to the intussusceptum.

In three of the cases reduction was obtained by increasing the pressure of the enema without anesthesia. In one case this was done unintentionally and probably incompletely but in two it was done purposely and completely.

This method of reduction is less severe and easier to control than the external manual method of reposition (Monrad) and should be attempted prior to operation in every case.

bacteria was noted in seven. In three cases the secretion investigated reacted differently. In four instances no bactericidal effect upon colon bacilli was noted. In every instance enterococci as well as hemolytic streptococci and streptococcus viridans were killed by these gastric juices. Staphylococci were found to be a little more resistant, a bactericidal effect upon them being noted in only four of seven instances.

With regard to the nature of the bactericidal substances Loewenberg believes he can rule out the action of pepsin. The bactericidal action of the gastric juice appears to be very intense comparative experiments with 0.2 and 0.5 per cent carbolic acid upon colon bacilli showed the gastric juice to have a stronger effect. With the use of a 1/33 solution of hydrochloric acid which corresponds to the strength of hydrochloric acid following a test breakfast quicker destruction was achieved than with neutral or neutralized gastric juice. LOEWENBERG (2)

Miller C. Gastric Hemorrhage. Brit. M. J. 1917 1 41

The sudden vomiting of a large quantity of blood occasions great consternation. Fainting, pallor, tarry stools etc. may be equally serious but do not produce the same impression on the patient or his friends. Advances in gastric surgery have proved that many ideas regarding gastric disorders are erroneous. Gastric hemorrhage results from many conditions other than gross ulcer. Many large chronic ulcers exist for years without bleeding and copious hemoptysis occurs among patients who never have had any gastric ulceration.

Whenever gastric hemorrhage occurs it is usually due to ulceration with loss of tissue. It results from digestion of the stomach wall by the gastric juice. Gastric juice does not digest healthy mucous membrane. Gastric ulcerations may be multiple and minute or microscopic. Among the various causes of gastric hemorrhage are trauma with resultant submucous hemorrhage and chronic ulceration, the action of corrosive poisons, cirrhosis of the liver, arterial embolism of the gastric vessels associated with mitral stenosis or endocarditis, chronic interstitial nephritis with hypertension and syphilis with or without luetic ulceration of the gastric mucosa.

Chronic gastric ulcer of the callous type involving the lesser curvature and often adherent to the pancreas may erode the splenic vein and cause copious hemorrhage. Carcinoma of the stomach is more frequently associated with tarry stools and small amounts of blood in the stomach. The acute gastric ulcer is responsible for about half of the cases of hematemesis and melæna admitted to hospitals. Castrotasis is that condition of gastric hemorrhage without any obvious ulceration or bleeding point in the gastric mucosa. The term erosions is used to denote such minute and microscopic ulcerations. Extragastric causes of hemorrhage include sections of various viscera such as the gall bladder and appendix.

At the onset of the symptoms no surgical measure should be considered. The patient should be placed at rest and given morphine at once. A certain degree of collapse lessens the chance of further hemorrhage. The majority of patients with gastric bleeding recover under medical treatment. Repeated hemorrhage and chronic gastric ulcer demand surgical treatment and often blood transfusion. The Lennhartz and Sippy methods of treatment of ulcer are excellent. M. gnesia, soda or calcium carbonate can be given alternately with the feedings. Bismuth is often of value. After the patient has recovered from the gastric hemorrhage a complete study should always be made to determine the exact nature of the pathological changes in the stomach.

J. H. W. ALLEN, M.D.

Morton C. B. Observations on Peptic Ulcer. J. S. 1917 1522 27

Morton describes a method of producing chronic gastric ulcer discusses the etiology and reports its roentgenological study of experimental chronic ulcer and his findings with regard to the healing of experimental peptic ulcer after a gastro-enterostomy has been performed.

A method of producing chronic gastric ulcer etiology. The author found that ulcers produced experimentally in the stomachs of dogs were grossly and microscopically the same as the ulcers found in the stomach and duodenum of man; they were subacute and chronic showed little or no tendency to heal and were inclined to perforate. They appeared also to have a selective affinity for the parts of the stomach that are shown clinically to harbor peptic ulcers most frequently.

The experiments reviewed were performed on four groups of dogs. In those of the first group acute ulcers were produced by excising small areas of mucosa in the stomach and duodenum, the normal continuity of the gastro-intestinal canal being left intact. All of the ulcers healed rapidly although areas on the lesser curvature of the stomach healed less rapidly than similar areas on the greater curvature.

In the dogs of the second group the operation for surgical duodenal drainage was performed. Subacute and chronic jejunal ulcers were found in all.

In the dogs of the third group small areas of gastric mucosa were excised and surgical duodenal drainage was established at the same time. All areas showed delay in healing. In 50 per cent of the prolonged experiments subacute and chronic gastric ulcers formed in areas of the lesser curvature while similar areas on the greater curvature in the same stomachs became healed.

In the dogs of the fourth group areas of gastric mucosa were excised at a second operation two weeks after the establishment of duodenal drainage. The results were similar to those in the preceding group except that subacute and chronic ulcers of the lesser curvature were found in 65 per cent of the prolonged experiments.



rupture is followed by death relatively seldom in the cases of patients who were not purged before their admission to the hospital. Apparently the latter are as yet unaware of the grave danger of administering castor oil and Epsom salts to abdominal pain.

With regard to the question of early and late operation Howard states that when a patient, especially a child, is very ill with a rapid pulse and evident perforation it is good judgment to keep him under observation for a time if the infection shows any tendency to localize. Because of the danger of sudden and fatal collapse a large abscess which can be felt on rectal or abdominal examination should be merely punctured and allowed to drain slowly.

When it is not inserted a drain. When contamination of the peritoneum has once occurred there is no peritoneal toilet that is safe enough to warrant closure without drainage. Drainage should be established in every case of perforation and especially of gangrenous appendix. The stiff drainage tube has many objectionable features among which its tendency to cause a fecal fistula. A soft drain does no harm when left in place for nine or ten days. Probing and the pulling drains early are often fatal.

Pulmonary embolism is a most dangerous complication. It occurs most often between the sixth and ninth days after operation and usually in septic cases. Gastric dilatation demands early and repeated gastric lavage.

The treatment of peritonitis consists in Fowler's position, the withholding of everything by mouth, the administration of morphine to control peristalsis, gastric lavage when necessary, proctocolysis or hypodermoclysis to supply an abundance of fluid and the administration of soda and glucose to control acidosis.

JOHN W. ALLEN, M.D.

## LIVER GALL BLADDER PANCREAS AND SPLEEN

**Edly J. Healed Multiple Ruptures of the Liver with Injury of the Intestine. A Contribution on the Diagnosis and Treatment of Subcutaneous Rupture of the Liver (Ghele multiple Leberupturen mit Darmverletzung). Leipzig, 1906.**

With the report of his experiences in four cases the author reviews our present knowledge regarding subcutaneous rupture of the liver. The most important predisposing factors are pathological changes in the liver which not only increase the friability of the organ but cause it to project beyond the costal arch and thereby render it more exposed to the effect of trauma.

The symptoms are at first those characteristic of rupture of the liver and later those of internal hemorrhage and anemia and their sequelae. The abdomen is extremely tender and in the right hypochondrium below the liver the pain is particularly severe and occasionally radiates to the right shoulder. The peritoneal irritation caused by the escaping

blood and bile causes biccous belching and nausea. Under the right costal arch the rigidity of muscular defense is noted. In the right iliac region there is often increased dullness as the blood flow follows the ascending colon and the blood collects in the region of the caecum. The most unfavorable sign is bradycardia coming on after several hours in spite of increasing anemia.

The only treatment for rupture of the liver which may be fatal because of its own effects or its complications is a timely operation under either narcosis. Because of the danger of necrosis even large portions (up to one quarter of the organ) must be removed if they are separated from the rest of the liver. Hemorrhage from injuries of the convex surface of the liver is checked by catgut ligatures and tannin gauze tampon. Hemorrhage from the upper surface is checked by plastic surgery with the use of fascia and omentum tamponade with small pieces of muscle or suturing of the liver to the diaphragm.

In the four cases reported there was one death but according to other statistics the mortality of the condition is usually much higher. Koch (7)

## Martin L. Estimation of the Pancreatic Enzymes and the Value of Such Determinations from a Clinical Standpoint. J. Clin. Med. 1917, xxx, 343.

The estimation of the pancreatic enzymes is claimed by the author to be of great importance in the differential diagnosis of choledocholithiasis and cancer of the head of the pancreas. It may possibly serve also as a diagnostic method in cases of chronic pancreatitis which may be benefited by the use of pancreatic extracts.

In cases of low pancreatic activity associated with gall stones or a chronic biliary infection in which treatment for the hepatic condition fails to cause improvement cholecystectomy should be considered.

Enzyme activity is usually greatest in that part of the duodenal contents which is contained in the darkest biliary secretion commonly known as B bile. When it is not it is such that it can be taken to represent the functional activity of the pancreas. When this portion is turbid because of the precipitation of bile pigments by hydrochloric acid the use of clear A bile is suggested.

After thorough centrifugalization 1 ccm of this is placed in 19 ccm of buffer solution Ph 7.2 and 1 ccm of the 1:20 mixture in 29 ccm of the same buffer. This makes a 1:600 dilution. These two dilutions are sufficient.

Into three Folin and Wu blood sugar tubes are placed respectively 1 ccm of the 1:20 dilution, measure 1 from an accurate 1-cm pipette, 0.1 ccm from a 0.1-cm pipette of the 1:20 dilution with 0.9 ccm of standard buffer and 1 ccm of the 1:600 dilution. To each tube is added 1 ccm of a 1 per cent starch solution made up by boiling. This is incubated for thirty minutes in a water bath at a temperature of 38 to 40 degrees C. 1 ccm of

Alarez W C Reverse Wave in the Pars Pylorica of the Stomach *J Am Coll Surg* 1927 15: 473

Reverse waves have been seen in the pars pylorica of the stomachs of rabbits suffering from mild dynamic obstruction of the small intestine produced experimentally.

Similar observations have been made in man. In both man and rabbits the reverse waves have been associated with others running aborally. It is possible that the reverse waves account for some of the distress and feelings of indigestion complained of by persons with duodenal ulcer and intestinal obstruction.

Floercken H and Steden E Contribution on the Development and Treatment of Peptic Ulcer of the Jejunum Following Gastric Operations on the Basis of My Own Experience and That of Twenty Two Other Surgeons (Bericht zur L. 1. Sitzung d. Th. 1. d. Ulcers p. pt. um jejun. n. ch. M. ge. pe. at. n. a. h. ger. i. f. a. h. g. a. u. d. c. i. L. m. f. r. b. e. s. Ch. ru. gen.) *Chirurgia* 1926 11: 73

The author discusses the development and treatment of peptic ulcer of the jejunum on the basis of the literature which he reviews briefly his own experience and the replies to a questionnaire sent to twenty two other surgeons. He draws the following conclusions:

When gastro-enterostomy is performed for ulcer of the duodenum in men of middle age the occurrence of peptic ulcer of the jejunum within the first two years after the operation is to be expected in about 35 per cent of the cases. In the formation of a peptic ulcer of the jejunum constitutional factors are of importance. When anterior gastro-enterostomy with the Braun method of anastomosis is done the incidence of this lesion increases to 26.8 per cent.

In the localization of a peptic ulcer of the jejunum the clamps used in the formation of the anastomosis seem to be of importance. The attempt should be made to avoid the use of clamps especially in the jejunum. When no clamps are used the morbidity due to peptic ulcer of the jejunum is reduced to 0.3 per cent.

The pyloric exclusion of von Eisberg should be discontinued. Primary extensive resection in duodenal and gastric ulcer does not always protect against the formation of a peptic ulcer of the jejunum but is associated with much less danger of this sequela than gastro-enterostomy.

The treatment of peptic ulcer of the jejunum must be surgical. The procedure of choice is radical resection. When this is impossible a jejunotomy should be done. New anastomoses may not function and are therefore to be avoided. Especially in cases of high gastro-enterostomy the attempt may be made to perform a palliative resection of the pylorus and antrum according to Kreuter's method.

Ballin M Diverticuli of the Colon *Am J Surg* 1927 1: 3

A true diverticulum is usually congenital and its pouch is composed of the entire wall of the viscus. A false diverticulum is acquired and its pouch is formed by herniation of only the mucosa through a weak spot in the muscular coat of the viscus. When a diverticulum is formed in the intestines stagnation of the intestinal contents may occur and give rise to inflammation.

Diverticula occur more frequently in obese persons than in thin persons and in males than in females. Not all diverticula cause symptoms. In the colon diverticula occur most frequently at the recto-sigmoid junction. Deaver does not accept the theory that the entrance of the blood vessels weakens the intestinal wall sufficiently to allow herniation. The author attributes diverticula to a replacement of muscle tissue with fat and regards constipation as a contributory cause.

The diagnosis of diverticulitis of the colon is based on a history of colicky pain in the left iliac quadrant of the abdomen associated with rigidity, fever and leucocytosis. The sigmoidoscope is not very helpful as it reveals only the inflammation of the mucosa. X-ray examination although somewhat dangerous in acute cases may outline the sacculi made three or four days after the opaque meal often shows small sacs which in the first place are obscured by the bowel.

Eight clinical types of sigmoid diverticulitis are discussed and illustrated with case reports including acute and chronic conditions, abscess, malignancy and urinary complications.

Chronic inflammation surrounding the diverticulum is often mistaken for cancer. Following a preliminary enterostomy the malignancy seems to predispose to cancer. The cancer does not grow to ward the bowel men and therefore causes no symptoms of obstruction or filling defect in the X-ray picture. The author believes that most vesico-enteric fistulae are due to diverticulitis and are inflammatory or malignant.

In cases of inflamed diverticulum of the sigmoid adherent to the bladder gangrene of the scrotum may be caused by the ectodermic fascial planes in the perineum.

The treatment of diverticulitis may be medical or surgical. In chronic conditions relieved by a low residue diet a colonostomy is indicated. Acute cases require surgical drainage or resection.

KARL H. T. L. N. B. T. M. D.

Howard C The Appendix Problem Today *Col Surg* 1927 1: 97-102

Howard emphasizes the fact that appendicitis occurs with considerable frequency as a sequel of tonsillitis. He has known of perforation of the appendix in the cases of seven persons recently treated for abdominal grippe. He confirms the old observation that operation for appendicitis with

trypsin in the serum and so long as we do not know the mechanism of anti trypsin formation in the serum it will be impossible to determine whether passive trypsin immunization in acute pancreatic necrosis is possible or why it is impossible

KONJATEV (7)

Inlow W DeP Traumatic Abscess of the Spleen  
J N S 1917 15:9

Traumatic abscess of the spleen is rare. In the available literature the author has been able to find the report of only twenty three cases. These and a case of his own are reported.

The condition is caused by injury to the splenic region with contusion or rupture of the spleen. The abscess results from the secondary infection of a hematoma and contused tissues. Separation of necrotic masses often results in splenic sequestra.

The course of the condition may be divided into three stages: (1) the stage of initial injury; (2) the intermediate or cryptic stage; and (3) the terminal stage or stage of extension or rupture.

The cases fall into four groups: (1) those in which the injury is more or less limited to the splenic area; (2) those in which the injury to the splenic area is associated with other injuries; (3) those in which the injury is associated with symptoms indicating early operation; and (4) those in which the condition is latent.

The diagnosis may be difficult. Many cases have been recognized only following rupture or at operation or autopsy. The treatment is surgical. The prognosis is grave. The mortality has been 55 per cent. The mortality in cases operated upon was 35 per cent and that in cases treated medically excluding latent cases 100 per cent. Early diagnosis and timely intervention should improve the results.

HERMAN O McPHERSON M D

### MISCELLANEOUS

Deaer J B Clinical versus Surgical Abdominal Diagnosis  
Am J S 1927 1: 99

The author discusses at length the relationship between the modern methods of laboratory pathological and clinical diagnosis and the methods that were necessary before the various laboratory sciences had advanced to their present stage of accuracy and importance.

Before the day of such development clinical diagnosis depended upon the trained senses, the accumulated experience and the natural acumen of the observer. The history in patients and palpation of the patient and common sense were the only adjuncts at hand. But as science has advanced so has the necessity for the education of the clinician. The clinician must be a good physician, a good pathologist and the like. The present status of clinical diagnosis reaches its height when the powers of the old time clinician are blended and improved by the newer methods of laboratory study now available. Hence the laboratory methods of diagnosis from the modern clinician and he could in no way approach his present accuracy of observation.

However implicit faith in the laboratory to the exclusion of the other elements of diagnosis is not to be desired. Elements of error cannot be overlooked nor can the personal equation of the one making the tests.

Not only is the laboratory of invaluable aid in diagnosis but its importance in determining the operative risk is becoming more and more marked. Blood chemistry, roentgenology, renal function tests etc. are all of indispensable aid to the scientific clinician.

Notwithstanding the aid given by the laboratory, a keen observation, careful history and minute physical examination can never lose their importance. In the differentiation of abdominal conditions much can be learned by the palpating hand. The point of greatest tenderness, the radiation of the pain, the position of greatest muscle spasm, the direction of lagging or increase in the tenderness etc. The differences in the histories of high or low intestinal obstruction, acute pancreatitis, a lacate appendicitis are in many instances plus to the keen practitioner. Laboratory methods never can replace keen observation but with the addition of the modern scientific methods the art of diagnosis is made easier. Our present quality of diagnostic accuracy depends upon the proper correlation of symptoms with correct clinical pathological tests.

The value of such modern diagnosis is directly reflected upon the patient. Earlier and better diagnoses make for better prognoses, the reduction of morbidity and the lessening of average life expectancy.

MARSHALL DAVIS M D

alkaline copper sulphate of Folin and Wu are added and the test made as for blood sugar determinations

In normal cases the digestion in Tubes 1 and 2 will be practically complete. Tube 3 is the one to read. If this reduction is low it will be safe to take the 1:200 tube as representing the true pancreatic activity. The milligrams of dextrose produced from 1 c.c. of starch should then be calculated.

To arrive at a unit of comparison it is necessary only to multiply the amount found in Tube 3 by 100 that in Tube 2 by 33.3 and that of Tube 1 with a dilution of 1:20 by 3.3. For example in Tube 3 the

colorimetric reading of  $\frac{\text{standard}}{\text{unknown}} \times \text{amount of glu}$   
cose in the standard  $\times 100 = \text{milligrams of glucose}$

ANTHONY F. SAVA, M.D.

**Bernhard F.** A Method for the Recognition of Acute Pancreatic Diseases and for the Determination of Their Course (Lin. Meth. de ur. L. kenn. ng akut r. Pankreas k. anku gen u. d. z. Unters. chung. en thre. we. teren. \ la. (s). D. tsch. Zt. k. f. Ch. r. 19. 6. c. 11. 35)

For the diagnosis of acute pancreatitis in seven cases the author administered 50 gm. of insulin sugar by mouth and then determined the blood sugar content. A positive result was obtained in all.

In disease of the pancreas which has its most marked effect on the metabolism of carbohydrates the blood sugar level is increased. The increase is determined by giving 50 gm. of glucose in from 100 to 300 c.c. of water after previously determining the blood sugar and then making a second blood sugar determination at the end of forty-five minutes and a third at the end of two hours. In acute pancreatitis the blood sugar level is markedly elevated after forty-five minutes as well as after two hours. Distinct hyperglycemia is present also in cases of acute pancreatic disease which run their course without the appearance of sugar in the urine. Other conditions in which it occurs are gastric and duodenal ulcer and diseases of the biliary passages. These may be followed by pancreatic disease. Operation on either organic system may be followed by fatal pancreatitis. When pre-operative tests show a high blood sugar value the operation should be as conservative as possible. (Vor. ch. r. z. (Z).)

**Bailey H.** The Clinical Aspects of Acute Pancreatitis. B. J. M. J. 1927. 357.

The salient features by which acute pancreatitis can be differentially diagnosed from other intra-abdominal disorders are summarized as follows:

1. The patient is usually fat. It appears that obesity definitely predisposes to the disease.

2. The condition is recurrent.

3. Rigidity of the abdominal wall is almost completely absent. This is due to the fact that pre-operative general peritonitis is absent.

4. Cyanosis is a common symptom. It is most marked in the cervicofacial region and is due to the severity of the thrombæmia.

5. The pain is very severe like that of perforation and radiates to the back.

6. Loewi's mydriatic test. Four drops of fresh 1:1000 adrenal solution are instilled into one conjunctival sac. After five minutes four more drops are instilled. The pupils are then examined at the end of half an hour. While adrenalin has no effect upon the pupil of a healthy person in acute pancreatitis a positive reaction, namely dilatation of the pupil is often obtained. Frequently the dilatation is eccentric and oval. It may be due to irritation of the solar plexus by the swollen pancreas. The entire autonomic nervous system is thereby rendered very sensitive and the adrenalin detones the ocular sympathetic.

7. The presence of a palpable abdominal mass is rarely noted. Obesity may prevent the detection of a pancreatic enlargement.

8. Turner's sign—a local discoloration of the skin usually in the loin. This is seen in cases of two or three days standing and is due to the direct action of the pancreatic juice which escapes by way of the retroperitoneal tissues and passes by the most direct route to the surface.

9. Not uncommonly the diastatic index of the urine is raised from the normal 15 units to 15 or more.

10. In a small percentage of cases the urine contains sugar.

The mortality of acute pancreatitis is very high. It will probably not be lowered until the cause of the condition has been conclusively elucidated. The riddle of all acute intra-abdominal inflammatory disturbances will probably be solved when the keys are found to the commonest—acute appendicitis.

SAMUEL KERN, M.D.

**Harms E.** The Production of a Passive Immunity to Trypsin Intolerance in Acute Pancreatic Necrosis (U. ber. d. Erz. u. g. e. p. s. G. l. t. i. s. t. g. k. e. t. g. e. d. T. r. y. p. s. i. n. b. e. i. k. u. t. n. P. a. n. k. r. ) B. e. i. H. C. k. 9. 6. xx. viii. 48)

The author carried out experiments on trypsin immunization based on the work of von Bergman and Golecke. One series of dogs were treated with trypsin before the experiment and in a second group which were not so treated pancreatic necrosis was produced and serum from the previously treated dogs was injected.

In spite of the successful results obtained in the active trypsin immunization the injections of the serum of the dogs previously treated with trypsin failed to save the lives of the dogs in which acute pancreatic necrosis was produced by extensive resection of the pancreas and its implantation in the peritoneal cavity. The attempt was unsuccessful even when large doses of trypsin had been given for long periods of time.

In conclusion the author states that the reason why passive trypsin immunization is not successful is related to the problem of the formation of a tu

Laborde S and Wickham Y. Radiotherapy of Cancer of the Cervix of the Uterus (R l u t h é p l u n c r d u c o l l e l u t é u ) C y t é t b s t 1926 31 397

Laborde and Wickham classify cases of cervical cancer into the following four groups: (1) operable cases in which the lesion is limited to the cervix; (2) cases at the borderline of operability in which there is invasion of the juxta uterine tissues but the uterus is still mobile; (3) cases in the third stage in which the parametrium is invaded and the uterus is fixed the condition being inoperable; and (4) very advanced cases with invasion of neighboring organs, cachexia and sometimes metastases in which treatment can be only palliative.

In a total of eighty-nine cases available for statistical purposes a cure lasting for periods ranging from eighteen months to five years was obtained in twenty-four (27 per cent). Of the five cases in the first stage all were cured. Of the nine cases in the second stage 55 per cent were cured and of the fifty-two in the third stage 26 per cent were cured. Of the twenty-three cases in the fourth stage none was cured.

Uterovaginal lumbar treatment can be used only in cases in which the cancer is strictly limited to the cervix and the parametrium is not infiltrated. As it is impossible to know that there is no dissemination at a distance it should always be preceded by roentgen treatment. Infiltrating roentgen treatment is useful to sterilize the lymphatic tributaries of the cancer region. The authors employ a Gassie constant tension apparatus (5000 cts) and irradiate four large fields: anteroposterior and two posterolateral at a distance of 40 cm and with a filter of 1 mm of copper and 2 mm of aluminum giving 4000 to 5000 R per field (measured with Solomon ionometer). The total dose varies from 15,000 to 18,000 R and is given in 8 to 10 hours.

When the patient's condition allows it this dose should be given in a period of time extending to fifteen days. If it extends over a longer period the cervix does not receive a sufficient dose and later radium treatment is rendered more difficult. The radium treatment should be given at once after the roentgen treatment. After a rest of not more than forty-eight hours. The usual technique is with a filter of 1 to 2 mm of platinum are employed. The dose ranges from 40 to 50 m. Very large doses are used and may be useful. The radium radiation is given over a period of from four to twenty days. The best length of time is from four to six days. The authors do not use roentgen therapy except in very advanced cases in which treatment is only palliative.

They have concluded that in operable cases uterovaginal lumbar therapy alone or combined with roentgen therapy gives as good results as surgery. That the method may be used. They form the belief that operation was indicated after radium therapy but because of the opinion that the radium therapy destroys the cancer cell in the uterus

and subsequent operation does no more than remove a uterus that is already free from cancer and does not prevent glandular recurrence.

Infection often occurs in radium treatment of the cervix. The authors have found that polyvalent vaccine is a valuable preventive of infection in such cases but does little good after the infection has once begun.

AUDREY G. MORGAN, M.D.

Almbrough R A Jr and Norris C C. Factors Influencing End Results in Carcinoma of the Cervix after Irradiation. J Ob Gyn 1927 279

Certain factors influence the end results in carcinoma of the cervix treated by irradiation.

The fat spindle or basal-celled tumors appear to be the most malignant. The best immediate results were found in the basal-celled type while the best end results were obtained in the prickly-celled tumors. The high grade of malignancy of the basal-celled tumor is probably offset by its greater susceptibility to irradiation so that the end results are practically the same in all of the histological types.

As would be expected the best results were obtained in the cases in which the carcinomatous growth was limited to the cervix. The ultimate mortality increased in direct proportion to the extent of the disease at the time of the first treatment. Of the cases of recurrence after radical hysterectomy 12.8 per cent were living and well five years after irradiation.

The papillary form of cervical carcinoma gives a somewhat more favorable prognosis than the infiltrating variety.

The best results were obtained in patients between the ages of 50 and 55 years. The patients under 40 and those over 65 years of age responded poorly to treatment.

The total number of five-year cures in 263 cases was 13.7 per cent. The stage of the disease at which treatment was instituted is decidedly the greatest prognostic factor in cancer of the cervix and is more important than the histological type of the growth.

Wolfe in review gives a number of cases in which the uterus had been removed by radical hysterectomy some years ago. He stated that carcinoma of the cervix presented three different gross types: the type of onset of the symptoms and the rapidity of extension into the broad ligaments being different in each group. In the first group are the familiar cauliflower types of carcinoma. The second type is the so-called endocervical or infiltrating carcinoma. The third form is one which begins in the portio or near the external os and grows in various ways, destroying the cervix in its course of development.

Histologically four types are recognized. The first type which is least malignant is the old-fashioned squamous carcinoma. The second type is the leucocarcinoma. In the third group the transitional epidermoid cell is prominent. In the fourth group the predominant cell is the fat spindle or basal cell.

E. L. CORSELL, M.D.

# GYNECOLOGY

## UTERUS

Richardson E H Interposition of Abnormal Uterine Bleeding *Sth M J* 1927 xx 199

The author classifies abnormal uterine bleeding into the following three main groups: the obstetrical, the non-obstetrical and bleeding due to associated causes.

In the obstetrical group bleeding is caused by uterine inertia (subinvolution), injury to the birth canal, retained placenta, placenta praevia (premature separation), abortion (threatened and inevitable and incomplete), hydatiform mole (chorio-epithelioma) and ectopic pregnancy (bicornuate uterus). Injury to the birth canal includes that of the ordinary type that caused by rupture of the uterus and that caused by deep cervical tears involving the circular artery and vein.

Uterine bleeding independent of pregnancy may be caused by:

1 Pathological physiological conditions such as endocrinopathies and functional bleeding at puberty (endometrial hyperplasia of characteristic type) or at the menopause.

2 Infections of gonorrhoeal, puerperal or tuberculous origin.

3 Injuries mechanical (erosions), chemical, thermic and electrical or those caused by roentgen or radium irradiation.

4 Foreign bodies.

5 Malpositions.

6 Neoplasms of the uterus, ovary and tubes, both benign and malignant.

7 Remote causes such as acute infectious diseases, constitutional diseases (anaemia, haemophilia, syphilis, diabetes), organic diseases of tuberculous, cardiac, renal or hepatic origin, chronic intoxications from alcohol, phosphorus or lead and emotional or vasomotor disturbances.

C L H D 18 MD

Rosenz E L M Syncytial Endometritis and Syncytoma *Am J Obst G* 1927 xi 563

Two cases are presented of transitional lesions in the chorionoma group: syncytial endometritis and syncytoma. The lesions are essentially benign.

The treatment of syncytial endometritis is conservative: curettage being the method of choice in the majority of cases.

A review of the literature shows that there is a general cognizance of these lesions and further that many cases reported as typical malignant chorio-epithelioma are really of these transitional types. Without the recognition of the syncytial or transitional group the malignant tumors can not be interpreted properly. The incidence of typical ma-

ignant chorio-epithelioma or choriocarcinoma is much less frequent than has been supposed.

E I COR VILL MD

Lenz M Radiotherapy of Cancer of the Cervix at the Radium Institute Paris France *J R* 1927 xi 335

Some of the aspects of the treatment of carcinoma of the cervix uteri as carried out at the Radium Institute of Paris France are discussed in this report.

A thorough clinical and bacteriological examination made in all cases suspected of being carcinoma of the cervix and biopsy is done.

Epidermoid carcinoma at any stage is treated by radiotherapy only. Adenocarcinoma is considered radiorresistant and in early operable cases hysterectomy done three or four weeks after radiotherapy. Papillary types of growth are considered more favorable for radiotherapy than infiltrating types.

Deep infection in the form of parametritis or pelvic cellulitis is a contra-indication to radiotherapy. None but local radiotherapy is resorted to in this instance. The uterine and vaginal canal are used as sites for the radium when the disease is local to the cervix. When there are extensions to the parametria or pelvic glands, roentgen therapy precedes the curietherapy.

In curietherapy small doses of highly filtered rays are given twice daily for ten to fifteen days. A 200 kv transformer machine, 4 ma, 2 mm zinc 3 mm AL, a 3 mm good filter, 50 cm focal distance, a d usually 15 or more overlapping 15 by 15 cm fields are used. Accurate descriptions are given of fields and total dosage of roentgen rays and of the applicators and technique used in the roentgen therapy.

Both vaginal and uterine applicators are left in place for five to seven days, these being removed, cleaned and reused given once daily. The uterine applicator contains 333 mg radium element and delivers in five days approximately 4,000 m hrs. The vaginal applicator, 26.66 mg roentgen element are used and deliver in five days 3,168 m hrs. Thus a total of 7,000 m hrs is used, the combined uterine and vaginal application only employs 660 mg of radium. From 7,000 to 8,000 m hrs seems to be the correct dosage.

By the method used at the Radium Institute the chances of infection when the irradiation is continued for six days are minimal. Of 361 cases proved to be carcinoma by histological examination.

Which were treated and cured only six patients died of infection, ninety-five (62 per cent) were alive and free from local evidence of the disease in September 1925. All cases were treated during the years from 1919 to 1923. A J WES LARK MD

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Miller F F Pregnancy Following Inversion of the Uterus 1m J Obst G 19 37

The patient whose case is reported was a woman 23 years of age who gave birth to her first child in March 1924. The labor was entirely normal except for the third stage. Difficulty in the delivery of the placenta was followed by complete inversion of the uterus. The patient stated that she bled very profusely and that her condition was considered extremely serious for several days. During her convalescence she noted a continuous bloody discharge which generally was slight in amount but occasionally was quite profuse.

On October 9, 1924, she entered the hospital complaining of this discharge, a persistent dragging sensation in the pelvis and frequent headaches. On October 17, 1924, a slightly modified Spinelli operation was performed. Convalescence was uneventful and the patient was discharged from the hospital two weeks later.

On October 18, 1925, she gave birth to a normal male child weighing a little over 6 lbs. The labor was entirely normal and lasted only five and a half hours. Examination of the cervix and uterus immediately after delivery revealed no evidence of the operation. No abnormality of the anterior or uterine wall was noted, and no cicatrix or abnormally thin area could be found. Re-examination two weeks later revealed nothing abnormal. The puerperium was uneventful in every respect and the patient was discharged at the end of two weeks.

In fifty-six cases of uterine inversion pregnancy occurred once or oftener after the original inversion.

The Spinelli operation probably gives the best results of any operative procedure. The chance of recurrence of the condition is approximately 44 per cent when manual correction is done, whereas it is very slight when correction is effected by operative measures. Adherent placenta is common. Postpartum hemorrhage occurred in 14 per cent of the cases at the time of subsequent confinement. Sepsis occurred in only two and death in only one. The danger of rupture of the uterus in subsequent pregnancy following operative correction of the condition has been greatly exaggerated. Cesarean section seems unwarranted but more applicable to cases in which reduction is effected manually than in those operated upon. E. L. C. & L. M. D.

W. M. J. W. The Treatment of Eclampsia J. A. M. A. 9 1 449

The author classifies the toxæmias occurring in the last trimester of pregnancy as eclampsia pre-

eclampsia chronic nephritis eclampsia superimposed on chronic nephritis and low reserve kidney.

The majority of cases formerly designated as pre-eclampsia are now placed in the category of low reserve kidney. Only about 5 per cent of the cases—those in which the patient is acutely ill with marked hypertension, albuminuria, amaurosis and epigastric pain and the blood chemistry is identical with the eclampsia in blood chemistry—are considered as pre-eclamptic toxæmia.

In the group of low reserve kidney fall the cases with a blood pressure rarely exceeding 150/90, albuminuria ranging from a trace to several grams per liter and subjective symptoms of malaise, oedema and headache which are benefited by bed rest and a restricted diet and rarely if ever end in eclampsia. After delivery in such cases there is a prompt return to normal. The condition usually does not recur in subsequent pregnancies but if it does the symptoms are no more aggravated than in the previous pregnancy.

Differentiation between low reserve kidney and chronic nephritis and between uncomplicated eclampsia and nephritis engrafted on a chronic nephritis is often quite difficult before delivery and sometimes is impossible until recovery ensues. Postpartum studies are made or an autopsy is done.

TABLE I—USUAL RANGE OF CERTAIN CONSTITUENTS OF THE BLOOD

	Normal	Normal	Normal	Normal
	18-25	25-30	30-100	25-35
Non protein Nitrogen	30-35	25-30	35-100	25-35
Urea	0-3.5	0-3.5	3-9.0	4-12
Blood urea Nitrogen	3-4	3-3	10-13	13-4
Sugar	0-100	70-100	70-100	10-83
Lactacid	0-35	0-35	3-8	50-100
Inorganic phosphorus	2-3.0	5-3	2-3.5	5-5.5
Calcium	55-6	40-5	40-5	1-5
Red cell change				

No figures are given in Table I for low reserve kidney but as the latter condition is accompanied by no appreciable change the data in the normal column are applicable to it.

With the exception of the nephritic type neither pathological study nor chemical analysis of the blood and urine give any clue to the ultimate etiology of eclampsia. The author ascribes the condition to the elaboration during pregnancy from an unknown site of some chemical substance which profoundly disturbs metabolism and produces certain standard organic lesions.

The most effective treatment of eclampsia is prevention by intelligent prenatal care and alert

Martzoft H. H. Carcinoma of the Cervix Uteri  
Its Operative Prognosis. A Clinical and Pathological Study to Ascertain the Prognosis Following Operation for Extirpation of the Malignant Process. B. H. J. H. S. H. P. S. H. S. P. Balt. 1927. VI. 160.

In a previous communication the author reported a pathological study of 387 cases of cancer of the cervix uteri from the Gynecological Service of the Johns Hopkins Hospital. The present study is based on 145 of these cases operated upon during the 27 year period between 1893 and 1920. In every case a panhysterectomy was performed with the removal of a portion of the vagina and wide parametrial dissection. The patients all left the hospital alive and their present status is known except in the case of some who after having been traced for five years have been lost track of and have therefore been listed as five year cures.

From this study it would appear that a comparatively accurate postoperative prognosis can be rendered in cases of cancer of the cervix uteri provided the tissue removed at operation is studied with sufficient care and the operation is performed by a surgeon adequately trained in the surgery of the female pelvis. C. R. H. D. S. M. D.

#### ADNEXAL AND PERIUTERINE CONDITIONS

H. I. Knecht. C. An Inoperable Ovarian Tumor Treated by the Method of E. G. Mayer. *Am. J. R. G. I.* 97. 33.

In the treatment of inoperable ovarian tumor Holzknicht uses the method of E. C. Mayer. He does not discuss the method except to state that by its use the effect of the roentgen rays is augmented by a combination of roentgenotherapy with the intravenous injection of osmon, a protein free dextrose.

The case reported of a young Roumanian 20 years old who had had an ovarian cyst removed from the left side in July 1923. The pathological report at that time was papillomatous cystadenoma.

carcinoma. Recurrence in the summer of 1924 on the right side was treated with two series of roentgen irradiation without any benefit. In November 1925 a second laparotomy was performed. Four liters of blood tinged ascitic fluid were removed. The remaining ovary was palpable and found to be adherent to the intestines, the uterus and the peritoneum. Certain areas of the intestines were studded with tumors.

In January 1926 Holzknicht was consulted with reference to the advisability of giving further radiation. Because of the poor response to the previous roentgen therapy he decided to try the method of E. G. Mayer. Two days preceding and immediately before each radiation 10 cubic centimeters of osmon solution containing 33 per cent of protein free dextrose was injected intravenously. One half the skin erythema dose of medium hard roentgen rays was given through four large portals of entry to the entire pelvis. Following this course of treatment the patient improved symptomatically and the pelvic tumor which had filled the entire pelvis was reduced in size and became slightly movable. Treatments by the method of E. G. Mayer were repeated again in February 1926 and the patient returned to her own country. She continued to improve and in May 1926 the consulting gynecologist believed that the tumor was operable. At operation it was found that the tumor was entirely isolated and that a hysterectomy could be performed. All the tumor mass was separated and caudally and completely removed. The pathological report of the tissue was that the tumor masses were cystic with smooth internal surfaces. Microscopically there was not a single sign in any of the tissues examined to suggest a malignant tumor or carcinoma.

The extent and rapidity of response in this case is especially interesting because the previous course of radiation had been without benefit. Holzknicht has observed this rapidity of response on the part of the tumor only since the employment of dextrose injections. C. R. H. D. S. M. D.



Stroganoff's cases were of a mild type and occurred in women who were awaiting delivery in his clinic and were therefore treated immediately after the occurrence of their first convulsion.

ALBERT W. HOLMES, M.D.

**Fairbairn J. S. Acute Abdominal Emergencies  
Complicating Pregnancy and the Puerperium**  
B. 1. M. J. 97:456

During pregnancy certain emergency symptoms may arise which make the diagnosis and treatment of an acute abdominal condition very difficult. The diagnosis is most important. There are no doubt many cases of pregnancy in which the pain, nausea and vomiting are caused not by the pregnancy but by gastro-intestinal troubles entirely independent of it. On the other hand the symptoms of certain grave gastro-intestinal lesions may be attributed to pregnancy much time being thereby lost before a correct diagnosis is made. Whenever a surgical emergency arises during the course of pregnancy an experienced obstetrical surgeon should be consulted.

Some of the more important signs and conditions requiring investigation are vomiting particularly late in pregnancy, jaundice with epigastric pain and vomiting, acute cholecystitis or gall stones marked and continued abdominal pain due to accidental concealed hæmorrhage, ectopic pregnancy, acute necrobiosis of uterine fibroids, strangulated ovarian cyst or pyelitis, and acute pain with nausea vomiting abdominal rigidity and fever due to acute appendicitis, intestinal obstruction or peritonitis.

When once the diagnosis of an abdominal condition is made the treatment is the same as in the absence of pregnancy. Emptying of the uterus is positively contraindicated particularly in the presence of infection. Interference with the pregnancy is justifiable only if some operative procedure is contemplated which would be rendered too difficult by the pregnant uterus.

The postoperative management should be the same as in the non-pregnant state with the addition of all measures necessary to save the pregnancy.

ILLIEN B. MATTHEWS, M.D.

**Brodhead G. L. Accidental Hæmorrhage**  
York St. J. M. 97:9

In a series of cases of accidental hæmorrhage reviewed by the author there was no case of absolute concealment although in ten cases there was extensive concealed bleeding. Twenty-six of the women were multiparæ and even were primiparæ. The parity of one is unknown. Seventeen of the multiparæ had been pregnant from eight to eleven times. In 74 per cent of the cases the hæmorrhage occurred during the last month of pregnancy and in 48.5 per cent during the last two weeks. In placenta prævia the hæmorrhage appears earlier.

Among the predisposing and exciting causes were toxæmia of pregnancy, endometritis, a blow, a fall

a sudden shock, a severe attack of coughing or vomiting and a short cord.

The maternal mortality was 26.4 per cent and the fetal mortality 85.1 per cent. There were twenty-eight stillbirths. One baby born alive a monster lived only five minutes. Of the five infants born alive and discharged from the hospital in good condition three were born at term and two at eight months. In at least thirteen of the cases the pregnancy did not progress beyond the eighth month. Maceration had occurred in at least seven of the babies.

A woman with slight bleeding during pregnancy should be put to bed and kept under close observation. If the bleeding continues a modified de Ribes bag should be introduced and delivery completed with the forceps or by version if necessary. In some cases the author has used pituitary extract to advantage.

If bleeding occurs during the first stage of labor a large de Ribes bag should be introduced and delivery completed by forceps or version. The author agrees with Holmes that the safest course consists in protecting the membranes until labor may be expedited. He believes that to keep the membranes intact is to preserve intra-uterine pressure and that vaginal packing has no value not possessed by the hydrostatic bag and therefore should be discarded for the bag.

When a severe external or internal hæmorrhage has occurred before labor or in the first stage of labor and the cervix shows a dilatation of two fingers the author advises caesarean section or the introduction of the de Ribes bag followed by forceps extraction, version or craniotomy. In severe cases with little or no dilatation especially when the patient is a primipara caesarean section is the best procedure. If section cannot be done the use of the de Ribes bag is advisable.

So-called uteroplacental apoplexy does not require removal of the uterus.

Hysterectomy may be necessary when the uterus relaxes and bleeding continues in spite of packing. After the uterus has been emptied whether by caesarean section or otherwise Brodhead makes routine use of the iodoform gauze uterine tampon believing that it lessens the blood loss after delivery. One cubic centimeter of pituitrin is given in every case as a routine measure. ROLAND S. CROV, M.D.

**Hartermann J. Therapeutic Abortion (Le malaise de l'ortome thérapeutique)**  
G. et Obst. 2. V. 412

There is a great deal of confusion at the present time with regard to therapeutic abortion. Formerly it was permitted only in cases of severe hæmorrhage which threatened the life of the mother but the indications have been gradually extended until today it is considered permissible by some physicians not only as a means of saving the mother's life but also of safeguarding her health and even for social or eugenic reasons. However many conscientious

vigilance to recognize early the prodromal symptoms and institute early treatment of the various types of toxemia of pregnancy.

In the true pre-eclampsia the outlook of convulsions and coma is imminent and the part of wisdom is to forestall the eclamptic attack if possible by the early termination of the pregnancy consistent with the safety of the patient. The chance of procedure being governed by the condition of the cervix. If the cervix is soft or partially dilated the Ruth Levin the Stroganoff treatment and as soon as the patient has come under its narcotic influence inserts a bag with uterine section is resorted to preferably without an inhalation and then.

In nephritic toxemia if chronic nephritis complicating pregnancy the pregnancy should be terminated as soon as the condition becomes serious.

In eclampsia which rarely eventuates in eclampsia is recognized early sufficient to control the treatment and after pregnancy leaves no serious sequelae treated by let bed rest and observation unless as in the case of Stroganoff there is an exacerbation of symptoms when premature labor is induced.

In a careful consideration over a period of years of the treatment of eclampsia a by immediate delivery by abdominal or vaginal section a well ment force with chloroform anesthesia and by supplemental procedures such as liberal bleeding sweating intravenous therapy (morphine) and with the use of a combination of fluid the author (Lyon) has mistaken in his results as 40 per cent in eighty five cases of antepartum and intrapartum eclampsia. In 1912 m recent observations were instituted for a very few but he later until full recovery had been reached. In 1922 the full ingm his (Stroganoff) results were as follows:

On admission patient placed in a quiet darkened room and disturbed as little as possible. A special nurse on duty continues until the patient is faintly out of coma. One fourth gr (16 mgm) of morphine given hypodermically. Once patient catheterized excretion is free and of electrically and 1000 cc under nitrous oxide anesthesia if necessary. Patient placed on one side with the foot of the bed elevated as long as coma persists. Mucus wafer in the pharynx as it collects. Water given orally while the patient is conscious. If she cannot drink a count of coma or lack of desire the intravenous administration of 500 cc of 5 per cent glucose solution considered. If necessary followed by the early induction of labor and then effected by the simplest operative means by cesarean section if necessary seems imminent. No chloroform used. Clemcal as an anesthetic used as soon as the patient is faintly in order that the necessary sedation can be made.

One hour after admission if the patient comatose 2 gm of chloral hydrate given in 100 cc of water. Logically chloral hydrate is the same quantity of milk by rectum. If the patient

is conscious the chloral may be administered by mouth in 100 cc of milk.

Three hours after admission One fourth grain (16 mgm) of morphine given hypodermically.

Seven hours after admission Two grams of chloral hydrate given orally above.

Thirteen hours after admission One and five tenths gram of chloral hydrate given as directed.

Twenty one hour after admission One and five tenths gram of chloral hydrate given as directed.

General instruction While eclamptic patients are under treatment the assistants and nurses must insist on the greatest possible quiet. Callars are being or vice versa on in excess of 100 cc must not be employed. No change of bed made in the hospital unless authorized by Dr. Williams or Stanley.

This routine differs from that of Stroganoff notably in the omission of chloroform in the use of glucose injections and the route of withdrawal of blood. The withdrawal of blood is not for therapeutic but solely to obtain sufficient quantity of blood for routine determination and investigation.

TABLE RESULTS IN 273 CASES OF ECLAMPSIA

1910 up to December 31 1911 1912 from 1912 to April 30 1913

	1910 up to Dec 31	1911	1912	1913	Total
1st stage	33	5	30	0	58
2nd stage	4	54	35	7	4
3rd stage	11	8	4	5	30
4th stage	1	4	1	5	11
5th stage	3	0	4	0	7
6th stage	—	4	2	5	11
Total	25	65	72	2	164

TABLE 3—RESULTS IN ANTEPARTUM AND INTRAPARTUM ECLAMPSIA

	Antepartum	Intrapartum	Total
1st stage	49	7	56
2nd stage	31	4	35
3rd stage	—	—	—
4th stage	—	—	—
5th stage	—	—	—
6th stage	—	—	—
Total	80	11	91

TABLE 4—FETAL MORTALITY

	Antepartum	Intrapartum	Total
1st stage	0	4	4
2nd stage	0	0	0
3rd stage	—	—	—
4th stage	—	—	—
5th stage	—	—	—
6th stage	—	—	—
Total	0	4	4

Williams attributes Stroganoff mortality of 3 per cent to the fact that the great majority of

A Powers deficient disproportion present condition due to primary inertia secondary inertia (dry labor) a large baby or malpresentation

B Powers efficient disproportion present condition due to occiput transverse or posterior position or pathological pelvis or soft parts

C A combination of A and B

In the usual case of bradycardia the labor shows little progress in the first twenty-four hours. The pains vary from those which subside entirely to contractions which become more frequent and painful allowing the patient little time for physical and mental rest. Physical exhaustion may result with acidosis as demonstrated by an increase in the pulse rate, dryness of the skin, scantiness of the urine, the appearance of albumin, acetone and diacetic acid in the urine, slight fever and perhaps a sudden rise in the blood pressure. Not infrequently just as labor is imminent or accomplished convulsions with or without coma may begin.

The diagnosis is based at first on the patient's general physical construction and pelvic anatomy and capacity and during the later months of pregnancy on fetometry. It becomes certain when the normal time limits of labor are approached without sufficient accomplishment.

The prognosis for the mother is good. All of the mothers in the cases reviewed left the hospital alive. The fetal mortality was 5.8 per cent and secondary chiefly to rigor as operative measures.

The treatment consists primarily in eliminating for cesarean section those patients which would undoubtedly fall in the bradycardia class. It is hardly advisable to watch a pregnancy go beyond term and allow a fetus to attain such a size that dystocia is inevitable. In primary uterine inertia stimulation of the uterine contractions is indicated. Tumultuous contractions or pains demand sedatives. Cervical dilatation may be accomplished with the metreurynter. Manual dilatation is more successful in multiparae than in primiparae. If manual dilatation is indicated in the case of a primipara the author prefers Dehriesen's triple incisions. After complete dilatation not more than an hour and a half should elapse before the onset of the second stage of labor. With the cervix dilated the end of labor is in sight. If spontaneous delivery does not occur we are confronted with the possibility of dealing with any condition in the entire field of operative obstetrics.

MUEL J. FOGELSON, M.D.

Toneff E. Atropine Morphine in the Treatment of Rigidity of the Cervix (L. 1909 morphine dilaatant de la rigidité du col) Gyn. 1909 384

Cases are seen very frequently in which dilatation is very slow and painful in spite of good contractions and normal or nearly normal pelvic measurements. This rigidity is due to spasm of the os. Krönig says that death of the infant during labor is caused twice as frequently by anomalies of the soft parts as by anomalies of the pelvis.

In cases of cervical rigidity the author uses either atropine or a combination of morphine and atropine in the form of suppositories each containing 0.03 gm of morphine hydrochloride 0.03 gm of extract of belladonna and 2 gm of cocoa butter. He uses the combination more frequently than the atropine alone. He reports two cases in which he gave injections of 1 mgm of atropine and eight others in which he used the suppositories. He has employed the suppositories in many other cases but these are described as typical. The treatment failed only in the case of a primipara with a rachitic pelvis with a true diameter of less than 9 cm. In one of his cases the rigidity was not affected by deep chloroform anesthesia but yielded promptly to the atropine.

It is the author's practice to give atropine morphine at once as soon as rigidity is demonstrated. If there are clinical reasons to suspect beginning rigidity but the contractions are still sufficient he waits about two hours. He prefers the combination of atropine and morphine to morphine alone because it acts also on the spasm and pain which are associated with the rigidity.

The dose that can be used varies in different cases. Parturient women can generally stand much higher doses of these drugs than others. The author has given from 2 to 3 ctm of morphine and from 6 to 9 ctm of atropine within four to six hours. He has never noticed the slightest sign of intoxication in either the mother or the child. He believes this simple remedy should be tried in all cases of rigidity before operation is considered.

ANDREW G. MORGA, M.D.

Cornell E. L. Forceps Delivery. S. J. Gyn. & Obs. 1921 21 2

When instrumental extraction is attempted the cervix must be fully dilated, the bag of waters ruptured, the baby alive or only recently dead (within five minutes), the head engaged, the mother in good condition so that a general anesthetic is not contra-indicated, and the pelvis large enough to permit the passage of the child.

The second stage of labor should not last over one and a half hours without definite signs of progress and seldom over two and a half hours when progress is made. The technique of preparing and catheterizing the patient are described in detail.

A careful vaginal examination is made, two fingers only being used in the case of a primipara or multipara with a tight vaginal orifice. If more than two fingers are introduced the perineum should be stretched by ironing out with the use of green soap as a lubricant or by doing an episiotomy. If four fingers or the whole hand is inserted through the unprepared vaginal orifice, visible or invisible tears may result.

If the child's head is in the transverse diameter the author places the first finger in the upper lambdoid suture and makes pressure upward in a circular manner. At the same time the other hand placed on the fundus of the uterus presses down

physicians are in doubt as to just when therapeutic abortion is justifiable and when it is not.

In France the law does not permit abortion under any circumstances. Even in cases with the most definite indications it is illegal. The law is disregarded however when there are absolute indications and it is deemed advisable by two physicians. The Church of course is absolutely opposed to abortion. It was formerly more liberal in this respect and the author expresses the hope that its rules may again be relaxed to permit abortion when absolute indications are presented.

The laws of different countries vary from the severity of the French law to the laxity of the Russian law. The latter permits abortion on the basis of little more than the desire of the mother. The author believes that the French law is both too severe and too lax. It is too strict in that it forbids abortion under any circumstances and it is too lax in that as it is disregarded it may be stretched to cover abortions performed for insufficient reasons. Hartemann believes that the law should permit abortion on absolute indications and on certain relative indications the latter strictly defined. In cases with absolute indications a consultation of two physicians should be sufficient but in cases with relative indications there should be a consultation between the patient's physician looking out for the patient's interests, an official physician with the social point of view and a third person of either the medical or legal profession with a sort of regional jurisdiction.

ANDREY G. MOROZ, M.D.

### LABOR AND ITS COMPLICATIONS

Wieloch. The Replacement of Amniotic Fluid After Premature Rupture of the Amniotic Sac (De Fru htwas rrsatz n h orze t g m Bl sen spru g) Z m t bl f G z k 9 6 1 816

After the author's investigations in the normal third stage of labor had shown that the retraction processes in the uterine musculature can be inhibited by relatively slight pressure, the procedure of Bauer, namely the replacement by physiological salt solution of the amniotic fluid lost by premature rupture of the amniotic sac, was again adopted. For this purpose a metreurynter resembling Bauer's balloon is constructed. This consists of a Duchesne bag through the afferent tube of which is drawn another and somewhat narrower rubber tube with its opening just in the center of the base of the balloon without protruding beyond it. The balloon is inserted in the same way as an ordinary metreurynter and filled with 500 c.c. of sterile saline solution and through the middle tube a quantity of sterile salt solution up to 500 c.c. is injected into the uterus.

Following a discussion of the various reasons why the Bauer procedure was not generally adopted at the time it was suggested, the author reviews the advantages of the method described.

Seven cases in which the latter procedure was used are reported. In two there was a prolapse of

the cord with cephalic presentation in a narrow pelvis. In one case there was prolapse of an arm and leg with cephalic presentation in another cephalic presentation with prolapse of an arm in a narrow pelvis and in another a low position of the placenta with cephalic presentation and a narrow pelvis. Two were cases of cephalic presentation in a narrow pelvis with a conjugata vera of 8 and 8.5 cm. respectively. In every case the expulsion of the balloon was followed by version which was strikingly easy even in primiparae. The labor pains were increased after the filling of the bag. There were no hemorrhages in the third stage of labor. All of the mothers were discharged in good condition after an uncomplicated puerperium.

Of the seven children, one died half an hour after birth from intracranial hemorrhage attributed to the extraction through the narrow pelvis (conjugata vera 8 cm.). Another child suffered a fracture of the humerus and femur as a result of difficult extraction. The six surviving children were discharged in good condition.

The procedure described is indicated when (1) there are conditions directly endangering the child such as intra uterine asphyxia with only slight dilatation of the cervix as in prolapse of the cord, (2) complications arise which make spontaneous delivery very difficult or impossible (pronounced weakness of the labor pains after premature rupture of the amniotic sac, prolapse of an arm with cephalic presentation, posterior parietal presentation and transverse position of an undilated cervix) and (3) when disturbances arise and timely version and extraction in the interest of the child without injury to the mother is the most sparing procedure and other methods of delivery such as cesarean section cannot be considered.

WIELOCH (G)

Hoerner D. A. Bradytocia. A Study Based on 500 Cases in the Chicago Lying In Hospital. S. I. Gyne & Obst. 1917, 21, 94.

The term bradytocia is applied by Horner to labor which extends beyond average time limits whether accompanied by dystocia or not. De Lee gives the time limit as twenty hours for primiparae and fourteen hours for multiparae. It is difficult to differentiate between false labor pains and pains having their origin in the generative tract and to determine the time of transition from false to true labor pains.

Progressive dilatation plus contraction are the only criteria.

In 431 deliveries in the Chicago Lying In Hospital there were 500 cases of bradytocia and in 400 of these the condition occurred in women between 19 and 30 years old. There was no one exciting etiological factor. Of the combination of influences responsible the most important are early rupture of the bag of waters over term pregnancy malpositions, malpresentations and primary inertia. According to the causes the cases may be classified as follows:

The symptoms are pain in the pubic and sacro coccygeal joints, difficulty in walking and a palpable gap in the pubic joint. The patient may be made comfortable by placing her immediately on a Bradford frame and applying adhesive plaster strappings. Later a belt can be worn.

The prognosis is not as unfavorable as is generally believed. Proper orthopedic treatments relieve the symptoms and favor early recovery.

F. L. C. R. ELLIOTT

Harris J. W. and Brown J. H. The Bacteriologic Content of the Uterus at Cesarean Section  
(Am J Obst G 9 33)

This article is based upon a bacteriologic study of the uterine contents obtained at fifty cesarean sections. In nineteen elective cesarean operations at an appointed time, the end of pregnancy and before the rupture of the membranes and in sixteen cases the hysterical section was performed within four hours after the onset of labor, the uterus was uniformly sterile.

In fifteen cases in which the classical section was performed, one or more hours after the onset of labor, bacteria were always demonstrated in the lower uterine segment and in three of the cases streptococci were found.

Smaller cultures were obtained in thirteen low cervical hysterical sections, the uterine contents being sterile only in the three cases in which the operation was performed within a few hours after the onset of labor.

The bacteriologic findings show clearly why the conservative section is safe only when it is performed at the time of election.

While agnathic examination and premature rupture of the membranes undoubtedly increase the likelihood of bacterial invasion of the uterus, the absence of these factors in no way insure sterility of the uterus.

Elevation of the temperature is a valuable sign of intra-partum infection but a normal temperature cannot be accepted as evidence that ascending infection has not already occurred.

Whether the presence of bacteria in the uterine cavity is due to the pre-extension of bacteria in the vagina or ascending infection from the vulva cannot be determined until comprehensive studies of the bacterial flora of the vagina have shown whether the occurrence of autosepsis is possible.

F. L. C. R. ELLIOTT

Vignas H. The Risk of Cesarean Section Late in Labor  
(Le Q d Care n Sect L t in m t ns t l) p t d 13 97 5

As the classical cesarean section performed on the body of the uterus is followed by corvoration of the organ, always associated with some danger even in uninfected cases, it has been a common practice in infected cases to terminate such cesarean sections by a hysterectomy or a Porro

operation. When this is done, however, the uterus may sometimes be removed unnecessarily. To avoid hysterectomy, resort may be had to one of the following three procedures: (1) exteriorization of the scar, (2) exteriorization of the entire uterus or the lower segment operation and (3) cesarean section of the lower segment of the uterus.

Both of the first methods necessitate a second operation and must be performed in a hospital. With regard to the lower segment operation, Englehard recently suggested that the circulatory disturbance caused by the exteriorization of the uterus may favor venous infection and that in cases with severe infection at the operation of the uterus may lead to sepsis, which cannot be overcome even by delayed hysterectomy.

Low cesarean section has several advantages. The low position of the incision in the peritoneal cavity makes it possible to use a lower position to advantage. The incision is made in a zone that is much more resistant to infection than that of the classical cesarean section. The incision is not so large as that of the classical cesarean section and the loops of intestine and the omentum are pulled up by the uterus and therefore not exposed to fermentation, which is of great value in the prevention of secondary infection in cases where the condition of the uterus is the least satisfactory part of the uterus and much easier to suture than that of the classical operation. The scar is not disturbed by contractions of the uterus as is a scar of the body of the uterus and is firmer than the latter.

Objections that have been raised to the low cesarean section are that it is more difficult to perform than the classical operation and may be very difficult if the lower segment is not well formed as is the case just before and in the initial stage of labor. Copious hemorrhage may occur when the incision is made and the extraction of the infant is apt to be difficult. On repeated cesarean section, difficulty may be caused by superimposed scars and a laceration of the bladder to the lower segment.

According to Fortes, the low cesarean section is suitable for difficult cases and the case of slow labor with an apparently aseptic course and the lower segment operation is indicated for those in which infection is more probable.

AUDREY C. MCKENNA, M.D.

Welz W. E. Abdominal Cesarean Section in Detroit in 1926  
(Am J Obst G 92 1 6)

During the year 1925 there were 32,130 living births and 1,350 stillbirths in the city of Detroit, a total of 33,480 births. Of this number 10,425 (over 31 per cent) occurred in hospital. Approximately 30 per cent of white babies and 58 per cent of colored babies were born in hospitals. Five hospitals—Grace, Harper, Herman, Kiefer, Providence and Woman's—each had 1,000 or more births during the year. In these five hospitals 200 abdominal sections were performed in 6,920 deliveries. In the fourteen

ward. This simple maneuver will rotate the head in at least 75 per cent of the cases. If it does not succeed the head is pushed up and rotated manually and then brought down into the pelvis. Before the forceps are applied the head is rotated anteriorly at least to 45 degrees. Before the blades are locked the fetal heart rate is determined with the use of the head stethoscope. When the forceps blades are locked the heart tones show any change in rate. One may be sure that the cord is caught in the grasp of the blades. By manipulating the blades it is usually possible to push the cord aside. If it cannot be done it means that delivery should be rapid.

When the baby's head is brought to the perineum the power of the traction is lessened. The head is manipulated gently and brought to a point where the fenestra of the blades holds for about 2 or 3 cm. The blades are then removed. The rest of the head is lifted by stripping back the perineum with a large heavy towel folded twice. This protects the hands from fecal contamination. If the uterus does not contract soon the assistant places the palm of the hand on the baby's buttocks and presses it downward in the line of the axis of the pelvic inlet. At the same time traction is made on the fetal head in a downward and backward direction. The operator and the assistant must not work in unison. Too great pressure must be avoided as it may rupture the uterus. As the anterior shoulder is brought under the pubis the posterior shoulder is sought. The index finger placed in the baby's axilla and the shoulder extracted. If difficulty is experienced in extracting the body of the child because the anterior shoulder impinges above the pubis the posterior shoulder is grasped and rotated anteriorly through an arc of 75 degrees. This causes the anterior shoulder to rotate in a circular fashion downward into the hollow of the sacrum.

If the bleeding is profuse the left hand is inserted into the vagina under strict asepsis and a thorough examination is made quickly. If the vagina is the lower uterine segment and the body of the uterus to determine the cause of the hemorrhage. The placenta is delivered.

If the bleeding continues after the placenta is out and the uterus does not contract well it is the author's custom to give a course of obstetrical pituitary directly into the uterine wall through the abdominal wall. Since the administration of pituitary is in this manner the necessity for packing the uterus for postpartum hemorrhage has been reduced 75 per cent. If postpartum hemorrhage is more severe the mother is exhausted and does not respond to ordinary stimulation and second degree uterine atonicity elicits the use of

After the hemorrhage is controlled by the use of injected and interrupted sutures of forty-day chromicized catgut. Lacerations of the vaginal canal are repaired with interrupted catgut and the

episiotomy is repaired with a continuous catgut suture and one subcuticular stitch of silk worm gut.

*Lilame M. S. Int. J. G. Ideal Inverted and Flexed Application of the Forceps in High Foetal Position (Literary) (Id. 1) (Tuc. et al. h. nte. d. am. c. r. t. appl. at. s. h. s. d. f. r. p.) (C. m. c. b. 1. 9. 1. 1. 3. 6. 9.)*

Very often because of the inclination of the pregnant uterus orientation of the head of the fetus or other reasons the infant's head is arrested before it becomes engaged in the superior strait. In such cases high forceps delivery is indicated and the inverted and flexed application of the forceps should be used. This application differs fundamentally from the classical application. It is correct with reference to the presentation, the axis of the pelvis and the mechanism of delivery. The forceps are applied so that their concave border is directed toward the face instead of toward the occiput. The position is just the reverse of that of the classical application. This inverted application is the only one that makes it possible to place the blades along the occipital-mental axis of the head presentation and the only application that makes it possible to flex the head by a proper movement of the handles of the forceps.

The article contains illustrations of the classical and inverted application showing the ideal posterior application of the blades in the latter. The handles of the forceps will be near the thigh of the patient on the side of the fetal presentation and when after their articulation the handles are moved toward the opposite thigh the head is flexed. This flexing maneuver is the cond step of the perineal lithotomy. Its object is to displace the occipitofrontal diameter which is presenting at the strait and substitute for it the suboccipitobregmatic. The head is then oriented in the corresponding oblique diameter of the primary transverse position being transformed into an oblique posterior position. By this movement which is called a primary rotation the concavities of the blades are adjusted obliquely forward and the concave borders obliquely backward facing the sacrospinous symphysis and the convexity of the sacrum. The pelvic curve of the forceps is therefore in proper position with relation to the axis of the pelvis. As traction is not made until after the preliminary rotation the head engages in the oblique position. The rest of the procedure is the same as in the oblique posterior position with engagement.

Archives G. 460. 62. 11 D.

*Boo Stein. S. W. Separation of the Symphysis Pubis with a Reproductor of Six Cases. Am. J. Obst. & Gyn. 97. 1. 345.*

The author reports briefly six cases of separation of the symphysis pubis. Conclusions that may be drawn to this complication include softening and relaxation of the capsule ligaments and just a minor contracted pelvis but the true cause is improperly directed forceps.







TABLE 3.—DR. TWIFFIN 1903-1910

	1903	1904	1905	1906	1907	1908	1909	Total	1 year	1910
Total deliveries	7	0	—	—	—	—	—	7	Total 17	—
Mortality	8	8.7	5	6.4	5.5	7	—	—	Percentage 6.4	—
Stillbirths	—	6	8	7	—	—	—	—	1 stillbirth	—
Placental previa	—	3	6	8	8	—	—	—	any—deh	3
Amniotic membrane	3	3	6	6	6	6	—	—	cases—deh	3.5 of 1
Puerperal fever	—	—	—	—	—	—	—	—	6 cases—year 1	1.57
Forceps	65	8	5	7	8	—	—	—	Average 7	7
Cesarean section	—	—	—	—	—	—	—	—	3 cases—deh	5
Perforation	—	—	—	—	—	—	—	—	—	—
Placental	—	—	—	—	—	—	—	—	7 cases—deh	3.5 of 1
Forceps	—	—	—	—	—	—	—	—	—	—

5. In the lesser degrees of contraction amplex the uterus will be given the woman ten to fifteen minutes before herself for the light ten hours may be necessary for the moulding of the fetal intertension to the fetus until there are no more fetal contractions. When fetal contractions are on the whole there will be no fetal contractions. When fetal contractions are on the whole there will be no fetal contractions.

6. High forceps should never be applied until all arrangements are perfectly for an operation to enlarge the pelvis.

With a view to the treatment of eclampsia it is of interest that despite the recommendation of Humer that the uterus be emptied Twelve believed that labor will never be induced and its onset is not parallel to that of the uterus. Progress will seldom be interrupted.

Sixty-two for L. M.D.

TABLE I—SIR WILLIAM SMYLY 1889-1896

	89-90	90-91	91-92	92-93	93-94	94-95	95-96	Total	Deaths	Live
Total	99	8	0	58	33	6		Total 18896		
Mortality	85	7	0	6	0	69	44	Percentage 57		
Mortality		0	8	5	7	6		Percentage 47		
Mortality	6	5	0	8	8	4	0	5 cases—dth	336 d	
Acute inflammation						5	4	30 cases—dth	81	
Chronic inflammation	3					3	7	30 cases—dth	81	
Chronic inflammation					7	7	7	30 cases—dth	81	
Forceps	47		9	5	4	3	44	30 cases—dth	81	
Cesarean		5						30 cases—dth	81	
Lymphoma								30 cases—dth	81	
Extracapsular	5	6	6		5		3	35 cases—Mortality 500		
Total			3	6	5	7				

TABLE 2—DR. PURIFOY 1896-1903

	96-97	97-98	98-99	99-00	00-01	01-02	02-03	Total	Deaths	Live
Total	9	33	59	360	6	1	7	Total		
Mortality	5	4	8-7	8	5	50	8	Percentage		
Mortality		6		6		6		Percentage		
Mortality		5	9			6		5 cases—dth	5	
Acute inflammation	8	6	6				5	30 cases—dth	61	
Forceps		9		53	6	6	8	30 cases—dth	7	
Chronic inflammation		5	3					30 cases—dth	6	
Forceps	50	57	66	6	66	65	60	30 cases—dth	6	
Cesarean								30 cases—dth		
Lymphoma								30 cases—dth		
Extracapsular			3			5		30 cases—dth	61	
Total	3		6			7				

tabular form the results of different periods contrasted and the changes in the treatment of obstetrical pathology explained. The tables cover a total of 34,457 obstetrical cases.

It is of interest that in the seven years of Sir William Smyly's mastership from 1889 to 1896 the morbidity was 57 per cent while under Dr. Purfoy's mastership from 1896 to 1903 it was 74 per cent and under Dr. Tweedy's mastership from 1903 to 1910 it was 64 per cent.

Purfoy and Smyly regarded a case as morbid if there was a temperature of 100.8 degrees F. on even one occasion. For the sake of comparison Tweedy used the same standard but instituted treatment in all cases with a temperature above 99 degrees F. for twenty-four hours and a pulse rate over 90. His treatment of morbid cases consisted in a vaginal douche, elevation of the foot of the bed, and purga-

tion. If the symptoms persisted uterine culture was made on the following day. Purfoy abandoned the fluhygic culture, stressed constitutional treatment, and introduced the use of rubber gloves.

Tweedy's views on the treatment of puerperal fever were the following:

1. The induction of premature labor is never advisable.

2. If ration is not permissible unless the child is dead.

3. Turning should never be done as a treatment for contracted pelvis, but may be performed for complications of labor such as prolapse of the cord when associated with contraction of the first or second degree.

4. In the greatest degrees of contraction time should not be wasted in an endeavor to obtain a natural delivery.

previously and was admitted to the hospital with lumbar pain on the right side chills and a temperature of 103 degrees F. The right loin was very tender. Cystoscopy gave negative findings on the left side but on the right side revealed a flow of thick pus. A catheter was left in. The X ray showed a small dense triangular shadow region in the right renal pelvis. A stone was removed by nephrotomy the organ was decapsulated and a drainage tube left in. The operation was followed by a high fever and chills. Blood cultures showed bacillus coli. A month later a rapid secondary nephrectomy was done. A pneumonia developed in the base of the right lung but the patient recovered and is now well.

Because of the insufficiency of clinical data reliable diagnostic criteria in such conditions as bacteremia in thrombophlebitis of the renal vein are yet unknown. However it is important for the surgeon to be aware that such complications of renal infection are possible and that the kidney may be the focus of metastatic lesions.

H. W. I. WALTER, M.D.

Haines W. H. and Milliken L. F. The Effect of Ether Anesthesia on Renal Function.  
C. I. 97 47

From numerous experiments on dogs with normal kidneys the authors draw the following conclusions:  
1. Deep ether anesthesia very markedly inhibits function in experimental animals.

2. The effect of ether on the kidneys appears to be that of a vasoconstrictor.  
3. Alluminaria and the other renal sequelae of ethanesthesia are probably due to a secondary capillary hyperemia following the primary vasoconstriction.

4. It is unlikely that ether has any direct toxic action on the tissues of the kidney.

5. The preliminary injection of morphine and urethane prevents ether inhibition of renal function in experimental animal.

J. SEPT. 5. HIS. AST. EDT. M.D.

Lee B. W. R. K. The Phenomenon of Pyelovenous Backflow.  
C. I. 97 95

The phenomenon of pyelovenous backflow was brought before the medical profession at the San Francisco Convention of the American Medical Association in 1903. Recently the occurrence of this phenomenon has been denied. This article is a preliminary report of work undertaken to prove its occurrence.

In the original contribution it was stated that when the tubules by the use of a true solution of potassium permanganate in stead of a suspension was used in the earlier experiments it has been found possible to penetrate in some cases as far as the terminal tubules.

The possibility of pyelovenous backflow was first suggested during an investigation of the renal circulation in which the pelvis of the kidneys were

injected with celluloid. In these investigations it was observed repeatedly that pelvic rupture occurred at surprisingly low pressures even those lower than the secretory pressure of the animal under observation. It was noted also that the pelvic extravasation invariably took on the structure of the veins.

The point at which the phenomenon starts has been difficult to determine. It was evidently in no way due to tubular rupture or to penetration through the tubular system. It has always seemed that the flow starts where the mucosa is acutely reflected from the pelvic wall onto the minor calyces. By increasing intrapelvic pressure the progressive stretching of this acute angle leads to minute tears in the mucosa which permit the fluid in the pelvis to pass into the veins. If the process starts as minute parenchymal ruptures why the absence of general extravasation? Why the specific selection of the venous system as opposed to the tubular interstitial and arterial systems?

It had been previously noted that while it is possible to reverse individual sections of the general circulation this does not apply in the case of the kidney. It is easy to irrigate normal saline solution through the kidney by way of the renal artery and obtain a ready flow through the renal vein but if this procedure is reversed and the kidney is injected through the renal vein no flow is ever obtained through the artery. Under the latter circumstances the solution steps short of the glomeruli and rupture of the kidney will occur before any further penetration can be obtained. Hence if the fluid in the pelvis once gets into the renal capillary plexus it cannot escape by way of the artery but must leave the kidney through the renal vein.

The fact that in cases of pyelovenous backflow the pelvic contents seemed to enter the veins through minute tears in the pelvic mucosa suggested a study of what happens when fluids are forcibly injected into the kidney substance. So far as the vascular system is concerned its only route of exit would be by way of the renal vein. In case of the interstitial tissue and lymphatic spaces two courses are open (1) it must remain in these spaces or (2) when introduced in large amounts cause extensive extravasation and ultimate rupture of the kidney or (3) it may break through the tubules and escape into the pelvis or break into the venous capillary plexus and escape by way of the renal vein.

To test these theories injections of India ink were made into the renal parenchyma of various animals. Fresh kidneys recently removed were used in this work and the injections were made gently and slowly. Various types of kidneys were employed in the experiments but the results were similar in all. The injection resulted first in the appearance of the ink in the subcapsular venous plexus of the cortex around the site of puncture. It then gradually spread locally and soon appeared at more distant points. After 1 or 2 cm. had been introduced depending upon the size of the kidney the ink began to flow out of the renal vein and

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

Hersberg R. The Practical Results of Extirpation of the Adrenal in So Called Spontaneous Gangrene of the Bladder. 110 Cases Reported by R. J. N. W. 1912. The Results of the Extirpation of the Adrenal in the Treatment of Spontaneous Gangrene of the Bladder. 110 Cases Reported by R. J. N. W. 1912. The Results of the Extirpation of the Adrenal in the Treatment of Spontaneous Gangrene of the Bladder. 110 Cases Reported by R. J. N. W. 1912.

On the 1st of the theory supported by laboratory findings that spontaneous gangrene is due to hypersecretion of the adrenal. Ofpel recommended the extirpation of the adrenal in this condition. In this article Hersberg critically reviews the results of treatment by Russian surgeons. In light of his own cases he concludes that the results of the adrenal in the case of the operation was followed by death in 10 out of 11 cases and in the remainder in improvement but the period of observation was only very short.

On October 1st, eight cases of death occurred in eight amputations was necessary in twenty-four. Of thirty-one patients re-examined from six to twenty-four months after the operation ten were cured of the spontaneous gangrene. Eight were cured after amputation performed within three months after the operation and the remainder were cured after amputation.

To the cases are all fifteen treated by other Russian surgeons making a total of 106. In all there were nineteen deaths of which were directly attributable to the operation. In forty-eight cases the pain ceased after the operation. In twenty it the pain increased but only for a short time. In thirty-seven cases amputation was necessary.

The end results are poor. Only three of the patients were still well two years after the operation. Therefore the hope of effecting a cure by epinephrine in spontaneous gangrene has not been realized.

1. Case of Thrombosis and Thrombophlebitis of the Renal Vein. 1912. 2. Case of Thrombosis and Thrombophlebitis of the Renal Vein. 1912.

One case of thrombosis and four cases of thrombophlebitis of the renal vein are reported in detail. The case of renal vein thrombosis was that of a male infant 2 months old who was admitted to the hospital with swelling of the right side of the scrotum and a cough. On the fifth day a movable mass was palpated in the right iliac and thereafter became progressively larger. The baby died on the seventh day.

Autopsy revealed a purulent tracheobronchitis and chronic indurated and organized pneumonitis in

both lungs. The right kidney was three times larger than the left. The right renal vein was distended by an adherent blood platelet and leucocyte thrombus.

The first case of thrombophlebitis of the renal vein was that of a 66 year-old man with a cough, dyspnea, anorexia and weakness. Two weeks after the patient's admission to the hospital the right kidney became large and tender and the temperature rose to 102 degrees. Cystoscopy demonstrated a lateral hydro ureteronephrosis. The patient died three days after the cystoscopic examination.

Autopsy revealed old adhesions in the apices of both lungs and anthracotic nodules. The heart valves coronary vessels and aorta showed atherosclerosis. The kidneys were surrounded with fat and were greatly enlarged weighing over 500 gm each. On stripping the capsule surfaces were found studded with abscesses. The renal veins of both kidneys showed thrombosis in the lumen.

The second case of thrombophlebitis was that of a man of 4 years who five weeks before his admission to the hospital developed a furuncle in the left temporal region. At the time of his admission he was suffering from chills, a high fever and pain in the right iliac region. The right kidney was palpable in the tenth rib. The lower third of the right ilium as tender and on incision pus was obtained from it. The patient died five days after his admission.

Autopsy showed a healed scar in the left lower a suppurating wound in the left iliac pustules over the back and arms and scattered raised reddish nodules throughout the lungs. The left kidney was normal. The right kidney showed a perinephritis about the upper pole. The renal vein was distended by an adherent grayish reddish mass.

The third case of renal vein thrombophlebitis was that of a man of 30 years who was recovering from gonorrheal urethritis. Ten days before the patient's admission to the hospital the introduction of a bougie by his physician was followed by pain in the left iliac region, a headache, fever and chills. The temperature rose to 102 degrees. Blood cultures showed the bacillus coli. Cystoscopic revelation of renal findings on the right side and purulent bloody urine under pressure from the left side. Ureteral catheter drainage gave no relief. On exposure the left kidney was found enlarged to twice its normal size. A subcapsular abscess of pus and size was found. Nephrectomy was done. The renal vein contained a thrombus. Convalescence was uneventful except for the development of a subcapsular abscess on the left side. This abscess was opened.

The fourth case reported was that of a man of 36 years who had a transient hematoma five years

rio l urine from the remaining supposedly non-  
 tuberculous kidney and in forty five cases urine  
 from both kidneys was injected into guinea pigs  
 in five (11 per cent) of the latter no evidence of  
 tuberculosis was found either by guinea pig inocu-  
 lation or by microscopical examination of the urine  
 in three (6.6 per cent) of the forty five cases the  
 guinea pig inoculation was negative while the smears  
 of the urine were positive. This discrepancy may be  
 explained by the inherent defensive mechanism of  
 guinea pigs which varies according to the number  
 and type of bacilli injected by fibrosis and encapsu-  
 lation of the infected area in the patient and by  
 the appearance of the bacilli tuberculosis in smears  
 so that at intervals the urine may be free from them.

In doubtful cases of renal tuberculosis the various  
 clinical and laboratory examinations such as uro-  
 graphy, cystoscopy, studies of renal function and  
 examination of other portions of the body for tuber-  
 culosis may be of greater diagnostic value than  
 examination of the urine by guinea pig inoculation  
 or staining for the tubercle bacillus. Cystography  
 may be of greater value in establishing the diag-  
 nosis than any other procedure it may justify a  
 definite diagnosis of tuberculosis even when the  
 microscopical and chemical data are doubtful or negative.

Of the 100 cases in which nephrectomy was per-  
 formed for unilateral renal tuberculosis the inocu-  
 lation of urine from the supposedly healthy kidney  
 into guinea pigs as followed in nineteen cases by  
 left unilateral tuberculous in the animal. In spite  
 of this result however a review of the data in these  
 cases led the authors to doubt whether all of the  
 patients had bilateral disease.

There is comparatively little difference if any  
 in the late mortality in the so called bilateral cases  
 and the unilateral cases. In many of the  
 apparently bilateral cases examination carried out  
 several years after operation showed that the symp-  
 toms had disappeared and that the urine was normal.  
 The observation made by Beer and his associates  
 that the positive guinea pig inoculations in these  
 cases were the result of contamination is probably  
 correct. It seems probable however that this  
 occurs by means of regurgitation from the bladder  
 rather than from contamination of the catheter.  
 Such regurgitation could be quite easy in the  
 presence of ureteritis of the lower ureter.

Cumming R E The Coincidence of Renal Tuber-  
 culosis with Hydronephrosis J U I 9 7

Renal tuberculosis and hydronephrosis have  
 been simultaneously in the human urinary tract  
 but the association is not common. Several cases  
 with extensive pyelitic involvement have been  
 successfully treated without surgical extirpation.  
 Very often a hydronephrotic kidney undergoing  
 more than the usual arterial pressure and accom-  
 panied by a flow of urine gives evidence of having  
 entered into function but when the obstruction  
 is relieved by retrograde catheterization its function

is rapidly restored. Repeated catheter  
 treatments should always be carried out except in  
 those occasional cases in which a stone interferes  
 with drainage or the infection extends to the treat-  
 ment a serious pyonephrosis resulting. By this  
 means an increasingly large number of patients are  
 being saved from nephrectomy.

Operative procedures such as resection of the  
 pelvis, transplantation of the ureter and nephro-  
 pexy have added incentive to attempts at salvage  
 of hydronephrotic kidneys. The treatment of ure-  
 teral strictures and the practice of leaving catheters  
 in the ureter and pelvis for long periods of time aid  
 in lessening or curing coincident infection.

In tuberculosis associated with hydronephrosis  
 and in non-tuberculous infection pre-operative  
 treatment is of supreme importance. Preliminary  
 drainage with catheters before nephrectomy lessens  
 the process of absorption and favors quicker healing.

All cases of renal tuberculosis are essentially  
 surgical unless the involvement is advanced and  
 bilateral. The procedure of choice is nephrectomy.  
 The author's method of treating the combined  
 lesions consists in attacking first the hydronephrosis  
 by establishing drainage then removing the organ  
 known to be tuberculous and then treating the  
 bladder and remaining pathological condition of the  
 kidney. Convalescence is much more rapid than  
 after the average nephrectomy for tuberculosis.  
 Cumming advances the theory that the open or  
 hydronephrotic kidney allows a better escape of  
 infected material from areas adjacent to the true  
 pelvis and calyces thereby lessening the toxemia  
 and general reaction to a systemic tuberculosis. He  
 believes that many of the supposedly involved  
 remaining kidneys are merely filtering the tubercle  
 bacilli through sound tissue.

The author reports five cases. In three complete  
 recovery resulted. One patient died later of urinary  
 tuberculosis and one shows persistence of bladder  
 symptoms.

GILBERT J THOMAS MD

Eberbach G W The Pathogenesis of Renal  
 Tuberculosis J U I 927 x 1 33

Investigation of the anatomical, clinical and  
 experimental aspects of chronic hematogenous renal  
 tuberculosis points to the primary arrest of the  
 bacilli in a glomerulus. Since in its early stages the  
 lesion is almost invariably single and unilateral it  
 seems logical to believe that only a single bacillus  
 laden embolus which has passed through the lung  
 capillaries lodges in a glomerular capillary tuft.

The bacilli are of low virulence and grow slowly  
 without completely obstructing the blood channel.  
 Later a few bacilli reach the capsular space and con-  
 tinue to multiply while being slowly washed along  
 until they reach a favorable focus for unrestricted  
 growth in the thin arm of the medullary loop. The  
 primary glomerular lesion may well continue to  
 grow slowly or if the bacilli are sufficiently virulent  
 develop into the predominating lesion. The medul-  
 lary lesion usually grows relatively rapidly and

continued as long as the injection was continued. A study of the kidney as injected in this manner and properly prepared showed extensive injection of the venous system. There was little evidence of interstitial extravasation at the site of injection and no demonstrable injection.

The experiments offer an explanation of the phenomenon of the kidney lacking. It may be concluded that any fluid is easily introduced into the kidney substance either through minute tears in the pelvis or by direct injection into the parenchyma from the outside will pass directly into the venous system. (HARRIS & F. WALKER, M.D.)

Hellström, J. A Contribution to the Knowledge of the Relation of Abnormally Running Renal Vessels to Hydronephrosis and to the Etiology of the Arterial Conditions in Bilateral Nephritis. *Acta Medica Scandinavica* 1927, 25.

The author reports two cases of hydronephrosis in which a peritoneal vascular stalk crossing the ureter was found to obstruct the outflow of urine from the renal pelvis. As a result of this finding he reviewed the literature on hydronephrosis and attributed to abnormal running renal vessels and investigated the vascular conditions in fifty kidneys in autopsied cases with the following conclusions:

1. The assumption that hydronephrosis may be produced by compression of the ureter by abnormally running renal vessels is based partly upon anatomical findings, partly upon the effect of migration of the vessel which result in relief of the pain, increased renal function, and partial or complete relief of the dilated pelvis. It is probable, however, that in such cases the renal dilatation may have been produced by other causes and that the vessels do not compress the ureter in the late stage of the hydronephrosis.

2. The conclusion that in many instances renal vessels crossing the ureter have been the main cause of hydronephrosis, but even in these cases there may have been contributory factors. Of the contributory factors generally it is temporary distention of the renal pelvis, of little importance than down and displacement of the kidney. Disappearance of the peritoneal stalk is of great importance since relief of the kidney is thereby facilitated and the vessel and ureter become more intimately associated when they are surrounded by fatty tissue. In the presence of abnormally running renal vessels a congenitally large and dilated renal pelvis probably favors the development of hydronephrosis.

3. In many cases it is impossible to determine the primary effect of the abnormally running vessel in the development of hydronephrosis. Other etiological factors must also be reckoned with such as anatomical conditions at the beginning of the ureter and disturbances in the peritoneal stalk of the renal pelvis and ureter.

4. The vessels giving rise to ureteral compression, whether primary or secondary, generally take a

course according to the law promulgated by Ekbom. However, such vessels need not necessarily enter the kidney outside the hilum or in the hilum border; they may enter the renal sinus.

5. Abnormalities in the distribution of the renal vessels are of very common occurrence (an incidence of 46 per cent in the cases reviewed). Anatomical reasons for the application to renal vessels of an abnormal course of such terms as accessory, supernumerary, or aberrant should be avoided. Abnormally running vessels, a better term, it must be borne in mind, may or may not have many transition forms between normal and abnormally running renal vessels.

6. The presence of peritoneal stalks does not settle the diagnosis. The intensity and duration of the pain are not in proportion to the size of the hydronephrosis. Ureteral catheterization may give useful information but may also be misleading. The most reliable information is obtained from pyelogram, but even this may be misleading. To determine the basis of a pyelogram whether ureteral compression by renal vessels is present is sometimes impossible. A hydronephrotic kidney which is shown by the X-ray to be undergoing the presence of abnormally running renal vessels. Tests of the function of each kidney separately may be of some aid in the diagnosis of an injury to the function of the healthy kidney, but is of subordinate value as an index of the state of the hydronephrotic kidney.

7. In the treatment the choice is between nephrectomy and a correction of the vessels as such as resection of the vessel. Operation of the vessels is possible in cases of circulatory disturbances in the kidney cannot be excluded, but as a rule these disturbances are so mild as to be of practical importance. In many cases division of the vessel may relieve the pain, increase the renal function, and at least to some extent bring about a reduction of the dilatation of the renal pelvis. This procedure should be resorted to in all cases in which the renal pelvis is not markedly dilated and there is no severe infection. Even under such circumstances, however, the vessel should be divided if nephrectomy is indicated by reduction of function of the other kidney. In true and in removable kidney, nephrectomy should be done notwithstanding division of the vessel and in the case of a kidney ureter fixed by adhesion to the thesion should be freed. When the other kidney is normal, nephrectomy should be performed in a rare case in which by a little pyelonephritis remains and the other with more severe infection or other changes in which division in the renal pelvis is to be expected after division of the vessel.

Morse, H. D. and Braasch, W. F. The Comparative Value of Guinea Pig Incision in the Diagnosis of Renal Tuberculosis. *J. Urol.* 1927, 17.

In 209 cases in which operation was performed for unilateral renal tuberculosis during a five-year

The typical kidney removed for atrophic pyelo nephritis ranges from 3 to 4 cm in length to approximately one third of the normal. It is surrounded by dense adhesion and may be difficult to find. The hilum is usually invaded by large deposits of fat. The renal pelvis is usually markedly thickened and cicatrized. On section the renal cortex is irregular and presents many pale areas of cicatricial degeneration.

Palliative operations such as nephrorrhaphy, decapsulation, pyelotomy with drainage and nephrotomy have not been found of any value. Pyelonephritis may persist following pyelotomy and eradication may be difficult in spite of the removal of all minor forms of obstruction and cicatricial contraction. Chronic pyelonephritis is frequently coincident with surgical conditions in other parts of the body and usually offers no contraindication to operation.

**Simpson G. Angioma of the Kidney. *P & R S Med Lo d* 97 78**

Simpson reports a case of angioma of the kidney. This is a rare condition. In a review of the literature only fourteen cases were found. It is unusual for a vessel to begin bleeding in such a sheltered situation without trauma but in the author's case no cause of trauma such as a stone in the renal pelvis or congestion from abnormal mobility was demonstrable.

It is impossible to diagnose the angioma before operation and in this case the tumor was almost overlooked at the pathological examination as it was no larger than the head of an ordinary pin. The author suggests that unexplained essential hematuria may sometimes be caused by minute glomeruloma. However in two cases in which he has removed a kidney for unilateral hematuria he is unable to demonstrate an angioma.

The treatment generally relied upon is nephrectomy. The author characterizes this treatment as a surgical iniquity. Method of kidney exploration which damages the kidney and make probable the necessity for a second operation are also unsatisfactory. Simpson urges suggestion as to more conservative treatment.

*J Edw & Le PATRICK MD*

**Front W A. Unusual Case of Tumor Implantation Following Nephrectomy for Papillary Cystadenoma. *J U* 1 97 1**

The author reports an extraordinary case of tumor implantation from a papillary cystadenoma of the kidney. The diagnosis of renal neoplasm was correctly made before operation and the nephrectomy was done through a lumbar incision. After being free from symptoms for three years the patient complained of sores in the nephrectomy scar and noted a small tumor mass below it. This tumor was removed. Histologic examination showed it to have a cell arrangement practically identical with that found in the kidney removed four years before.

*JOSEPH S EISENSTEIN MD*

**Crance A and Knickerbocker H J. Postoperative Results in Primary Carcinoma of the Ureter Following Complete Nephro Ureterectomy. Report of a Case Nearly Two and One Half Years Following Operation. *J U* 1 1927 vii 57**

**Stilling W C. Primary Malignant Papillary Cystadenoma of the Kidney with Fungating Growth in the Pelvis. *J U* 1 1927 vii 165**

CRANCE and KNICKERBOCKER have found in the literature to date the reports of thirty six cases of primary carcinoma of the ureter. Little mention has been made of operation. Few cases have been diagnosed by pyelography. In the majority the diagnosis was made at autopsy. The Mayo Clinic has had one case.

The patient is a woman 42 years of age who gave a history of weakness and attacks of hematuria frequently and urgency. At operation a long curved incision was made from the costal border downward to below the anterior spine of the ilium. The kidney was found distended. The pelvis of the kidney was almost as large as the kidney itself. An immensely dilated and kinked ureter was dissected out close to its junction with the bladder. Ligation was done and a specimen removed. Tissue examination showed carcinoma. There was no evidence of metastasis in either the kidney or the ureter above it. The patient made an excellent recovery and was discharged from the hospital with the wound completely healed. During the two years following the operation the bladder was examined on three occasions and at all examinations appeared normal. The patient has gained weight and feels perfectly well.

This case shows the importance of ureteropyelography on the side from which hemorrhage comes of complete nephro ureterectomy in cases of definite ureteral carcinoma and of subsequent cystoscopic examinations.

STILLING has collected thirty cases of malignant cystadenoma from the literature. These kidney tumors are relatively rare. The cause may be stone or infection. Trauma has also been mentioned as a factor.

Cysts may be single or multiple and well encapsulated and may contain bloody fluid and fatty detritus. The structure presents coarse trabecular or vascular connective tissue covered by cubical cylindrical granular or clear epithelium usually in a single layer. The tumors are slow growing and of a relatively low grade of malignancy. Metastasis occurs late. The symptoms depend upon whether or not the pelvis has been invaded by the tumor cells. Hematuria may occur early. Hematuria, pain and an abdominal tumor constitute the triad of symptoms. The diagnosis of cystadenoma has been simplified by the X-ray and pyelography. Pyelography will show distortion and encroachment on the renal pelvis. Braasch calls attention to calcified streaks occasionally seen in a primary roentgenogram of renal tumor. Kretschmer found an enormous amount of lime salt deposited in the tumor.





is inserted from the upper end to the juncture between the third and fourth quarters. A transverse incision is made from each end to the sides and the membranes separated like wings to the sides. Catgut is passed in and out through the lower end of the membrane and through the muscle and fascia at the upper angle of the incision. The catgut is then tightened and tied over the fascia at the level of the tenth rib. The wound is closed in four stages. By this method the kidney is protected.

Nephrostomy as performed by the author in 1892 for medical nephritis. Since then 100 cases have been operated upon with a mortality of 4 per cent.

In painful horseshoe kidney without a twin the isthmus is exposed by laparotomy and an incision made through the posterior sheet of the peritoneum. The isthmus is slowly crushed with an angiotomy until only the capsule remains. The capsule is cut but often too narrow clamping forceps and the cat ends are sewed up close to the kidney tissue before the forceps are removed. The kidneys then retract to their respective bed.

CLAUDE G. PICKELL, M.D.

Rusford C. F. Nephropexy for the Relief of Ureteral Kink Associated with Ptoxis of the Kidney. *J. Urol.* 1917, 39, 11.

In the author's opinion the operation of nephropexy as a cure for the symptoms produced by ureteral kink associated with ptosis of the kidneys has fallen into disrepute. He reports the results of a series of forty-eight cases.

When it has been proved by careful study that the symptoms are due definitely to the abnormal position of the kidney and obstruction of its drainage by the fixation of the ureter, quicker and more lasting results can be obtained by suspension of the kidney and straightening of the ureter than by ureteral dilatations and pelvic surgery. General ptosis of the abdominal viscera does not contraindicate nephropexy. Persistent infections in the ptosed kidney are frequently cured by straightening of the ureter by suspension of the kidney.

Of the author's forty-eight patients, forty-two were completely relieved of their symptoms and five failed to improve in some or all symptoms. One patient was reoperated upon two years after the first operation because of a recurrence of the symptoms but has since been relieved for ten years.

HELVY L. SODERBY, M.D.

Ockerblad N. F. Stricture of the Ureter in Males. A Report of Thirty-One Cases. *J. Urol.* 1917, 39, 11.

The author reports thirty-one cases of ureteral stricture. In ten the ureterogram failed to show the stricture. In the remaining twenty-one cases diagnosis was made by means of the bulb bougie. In all cases the stricture was unilateral and a bulb and required dilatation with a filiform. The patients in this series ranged in age from 1 to 4 years. The majority were between 30 and 40 years of age.

Clinical experience seems to show that local infection is an important factor in the etiology of ureteral stricture. In nine of the series, teeth or tonsils were found to be foci of infection and their removal plus dilatation of the stricture afforded striking relief of the symptoms.

Pain is the outstanding symptom of ureteral stricture but varies greatly in intensity, character and location and was absent in some of the cases reviewed. Urinary frequency, dysuria, pyuria and hematuria were other symptoms. In several of the cases the urine was entirely normal.

The location of the ureteral stricture is determined by the bulb and ureterogram. In all of the author's cases it was in the lower half of the ureter and in many in the appendicular area. Filiform strictures of the intramural portion of the ureter and of the first 2 or 3 cm. beyond the bladder are common and were present in one third of the author's cases. In thirteen of the cases the stricture was bilateral.

The treatment consists in dilatation of the ureteral stricture with increasingly larger bougies or catheters much in the same way that a urethral stricture is dilated and in the use of either ails or hydrant substances to clear up or keep down renal infection. The removal of foci of infection is of course a part of the treatment. As a rule ureteral strictures that do not remain dilated are likely to be tuberculous. In the presence of infection the reposition of the kidney to dilatation of the ureter and its functional integrity decide whether or not nephrectomy must be done.

H. W. L. SODERBY, M.D.

## BLADDER URETHRA AND PENIS

Campbell M. F. Studies in Bladder Decompression. *J. Urol.* 1917, 39, 371.

In studies of bladder decompression Campbell inserted a small lamped rubber catheter into the bladder and connected it with a three-way cock, manometer. He then slowly removed 30 ccm. of urine and noted the pressure. This was repeated until the pressure was zero. The bladder was then completely emptied. The procedure required from twenty to thirty minutes.

In all cases the bladder tension was reduced 50 per cent by the draining off of 120 ccm. Campbell found that it is the withdrawal of the first 100 ccm. that produces most renal and circulatory shock. The practice of partially emptying a distended bladder or completely emptying and partially refilling it is futile. The renal reaction is incited by the loss of the first few ounces.

Gradual continuous tension reduction substitutes the drainage of the kidney which occurs when a few ounces of urine are released periodically.

H. W. L. SODERBY, M.D.

Rose D. K. The Pathogenesis of Bladder Diverticula. *J. Urol.* 1917, 39, 51.

Diverticula of the bladder may be congenital or acquired. In certain cases Rose has found the muscle

One of the first changes in tumor of the parenchyma of the kidney is enlargement of the calyces.

Stirling reports the case of an 18-year-old girl who entered the hospital complaining of pain in the left side and back, nausea, vomiting, intermittent hamaturia, and loss of weight and strength. The general examination was negative except for slight pastiness over the abdomen with tenderness at the costovertebral angle. The bladder was normal. The urine showed many red blood cells and pus cells. There was a decrease in function on both sides. The pyelogram showed a filling defect in the left kidney. The pelvic outline was distorted and somewhat irregular. On delivery of the kidney, the tumor was found to have ruptured through the capsule. The irrigation was without drainage.

Convalescence was uneventful. The patient was discharged with the infection healed three weeks later. Subsequent monthly examinations revealed no recurrence of the symptoms.

The pathological diagnosis was malignant papillary cystadenoma of the kidney with fungating growth in the pelvis.

The author draws the following conclusions:

1. Malignant cystadenoma of the kidney is usually slow growing.

2. Pain, bleeding, and the presence of an abdominal tumor are the constant findings.

3. Pyelography is the most accurate method of diagnosis.

4. A grave prognosis is indicated if the tumor extends into the perirenal tissues or involves the kidney pelvis.

5. Malignant cystadenoma metastasizes relatively late and metastases involves the lungs, liver, and renal veins.

6. Hamaturia is often the first indication of a carcinoma of the urinary tract.

WILLIS M. DEWEY, M.D.

DONALD H. B. RIGER, A. and HARTMAN, F. W.  
The Relative Sensitivity of the Kidney to Irradiation. *Radiology* 97: 4.

The authors attempt to determine the relative susceptibility of the kidney of the dog to short wave length irradiation and to evaluate the barriers of the clinical application of deep therapy over the kidney area. In the liver and the adrenals chronic changes are rarely observed following irradiation either because the subject succumbs to the massive destruction produced by a large dose or the regeneration after small doses is so rapid and complete that little or no evidence of damage remains. In the other organs such chronic changes as manifested by the increase of connective tissue were noted. There was little or no reduction in the functional activity of these organs.

The kidney was found to be the most susceptible organ as regards both organic changes and loss of function. Chronic diffuse nephritis of the combined interstitial and vascular type was uniformly obtained even with relatively small single applications. The

lesions were progressive in proportion to the initial damage. The authors report two cases of renal damage with marked diminution of function following the clinical application of deep X-ray therapy to the renal area. One patient died in uraemic coma. In 208 replies received from 500 guinea pigs to roentgenologists and pathologists sixteen other cases of nephritis developing or becoming clinically recognizable during or after the course of deep therapy were cited. No record of the area treated could be obtained in the questionnaire data but it is significant that in the two cases reported by the author the treatment was given directly over the kidney area. The authors conclude that such direct irradiation should be avoided especially in the treatment of young persons.

CHARLES H. HEACOCK, M.D.

ROVING, T. MYT, HANLEY, in Operation on the Kidney. *P. 117-97*

In kidney surgery a good exposure is of major importance. In the author's case the patient lay on his back with the edge of the table cutting with the free border of the erector pinnar muscle. The incision is begun at the erector pinnar muscle midway between the twelfth rib and the iliac crest and brought forward to the rectus. If the ureter is exposed the incision is continued obliquely downward to the pubis.

Stone in the kidney pelvis or ureter is easily exposed. A pelvotomy is done only if the pelvis is aseptic. Others do nephrolithotomy performed with the stone held in between the thumb and the fingers of the left hand. An incision is made in the capsule on the convexity over the stone. A Foster forceps is then used to work through bluntly to the stone and the incision dilated as it is withdrawn. The stone is then removed with a stone forceps. By this method the blood vessels and ureter can be not cut but are separated at their natural lines of cleavage.

In nephrectomy for malignancy, tuberculosis or pyonephritis the ureter is doubly ligated and then separated with the Paquelin cautery. The kidney is then carefully isolated so that the capsule will not be torn. The vessels are ligated with strong catgut and the kidney is delivered. The ureter stump is sutured to the skin through an opening in the iliac fossa. A subsequent incision of the ureter can be treated.

As polycystic kidney is bilateral, conservative and safe surgical procedure is puncturing of the cysts. This is done with the kidney in its normal size. A cigarette is then introduced and removed after six days. A fistula does not follow. The renal function improves.

For nephropathy the incision is begun at the level of the tenth rib, extended to the erect pinnar and extended first downward and then forward to the twelfth rib and the iliac crest and then forward for 10 cm. The kidney is then freed and delivered and the ureter freed of strands of fascia. The membrane

Caudal anastomosis is desirable and may be employed as an office procedure.

Post cystoscopic roentgenograms will show the position of the seeds to be very inaccurate and that some of them have fallen out. Roentgenographic control is therefore of particular value after cystoscopic radium therapy.

In conclusion the author states that the control of bladder tumors will be successful in direct proportion to the promptness with which treatment is given.

LOUIS COSS, M.D.

#### McCuE S. The Use of the Appendix in the Formation of Urethra in Hypospadias

J. S. G. 971, 1939

The successful formation of a functionally and anatomically efficient male urethra in a case of marked hypospadias is a difficult surgical procedure. McCuE has accomplished it in three cases by transplanting the intact mucosa of the vermiform appendix.

By a series of plastic operations using transverse incision with longitudinal closure the first corrected any chordee or anatomical defect in the penile shaft and scrotum. Perineal urinary drainage was established to keep the operative field clean and dry. A trocar size of No. 10 catheter was passed through the glans at the site of the normal meatus and then subcutaneous passage was made to the site of the hypospadiac opening. The normal appendix was the selected tube for the better. The muscle and peritoneal layer of the appendix were dissected off and the intact tube of mucosa was passed over a rubber catheter and inserted into place through the trocar. Trocar passage was completed. Later the catheter was removed and the mucosal tube dilated with sound. When a satisfactory dilatation had been secured the hypospadiac opening was sutured to the normal urethra in the same way as a severed urethra is sutured.

Urethral results are good but in some cases a good result may require several operations.

H. O. McPHERSON, M.D.

#### McWhorter C. L. The Use of the Seton in the Repair of Torn or Stretched Urethra: A New Method in the Treatment of Two Cases

(1909, 1910, 1914)

The author cites the difficulty in obtaining satisfactory union at the end of a rupture or complete lacerated urethra and discusses the anatomy of the urethra and the urinary extravasation which the treatment of injury or obstruction of the urethra and reports a case of each condition treated in this way.

In case of rupture of the urethra anterior to the triangular ligament the extravasation of urine in the perineum and scrotum and occasionally the penis. If the fistula is perineal it is repaired by the creation of the pubic and spread over the entire bladder. Rupture of the membranous urethra may be followed by extravasation of urine extending

backward into the ischio-rectal fossa through the superior fascia between the prostate and rectum and upward into the prevesical space or the urine may leak through the inferior fascia of the triangular ligament and down into the superficial perineal space. If the rupture is in the prostatic urethra the extravasation of urine may extend upward to the space of Retzius or backward to the prostate and rectum. Extensive rupture may involve the bladder in which case there may be either intraperitoneal or extraperitoneal extravasation of urine.

Among the causes of urinary extravasation are periurethral abscess, traumatic rupture of the urethra, injury to the bladder and suprapubic puncture of the bladder. In nine cases the rupture of the urethra following fracture of the pelvis was located above the posterior layer of the triangular ligament. Deansley is quoted as suggesting that the rupture of the urethra is due to lateral compression of the pelvis with stretching of the soft parts and not to laceration by the end of the bone fragments.

The local treatment indicated following any injury or obstruction of the urethra with or without extravasation of urine is: (1) adequate drainage of the bladder and of extravasated urine or infection; (2) maintenance of the patency of the urethra until the granulation tissue has become covered with epithelium; and (3) the passage of sounds to prevent stricture. The chief difficulty consists in maintaining patency with approximation of the torn ends of the urethra. To maintain the patency of the urethra the seton is left in for several weeks that is until the granulation tissue has become bridged with epithelium. The rubber catheter may be used for the same purpose but it causes a certain amount of oedema perhaps by strangulating the blood supply and it interferes with drainage. If the rupture of the urethra is above the triangular ligament or involves the bladder with extravasation or infection, suprapubic drainage of the bladder should be done with drainage of the infiltrated area and the bladder. A catheter may be left in the urethra for a few days and then withdrawn, a silk seton being left in place until all inflammatory reaction has passed, during the passage of sounds and until epithelialization of the urethra has occurred.

The first case reported by McWhorter was that of a 7-year-old boy with a fracture of both rami of the pubic bone, rupture of the prostatic urethra and an extensive extraperitoneal rupture of the neck and base of the bladder caused by crushing between the tailboard of a truck and a tree. On the patient's admission to the hospital his face was drawn, his respiration and pulse were rapid and the abdomen was distended in the lower third. There was no evidence of injury to the penis, scrotum or perineum. The pain was too severe for a rectal examination.

At operation a suprapubic incision made through the prevesical fascia encountered bloody turbid urine in large quantities. When the fundus of the bladder was opened a tear large enough to admit

bundles in the bladder wall disappear in such a way as to leave extension entirely through the all fibrous tissue pathways which enclose the wall and thereby is or herniation. The acquired factor in diverticula formation is increased intravesical pressure due to obstruction.

The region near the lateral border of the trigone bears the greatest strain. Here the muscle bundles are larger and less numerous and by their attachment lessen the laxity of the area. Here also the fibrous pathways are more numerous. Hence the preponderant position of this region to diverticula formation.

HARRY A. FOWLER, M.D.

#### Keyes F. L. Recent Radium Treatment of Bladder Tumors. J. Urol. 92: 251, 2

Keyes following Baringer's procedure has implanted into a few bladder tumors radium emanation encased in metal capsules (the so-called "seals") in eight cases.

Encasement of the emanation in metal decreases although a secondary infection and eliminates the intractable radium burn without causing any notable diminution in the radium destruction of the tumor tissue.

When the suprapubic incision the implantation may be made almost quite entirely in the depths of the root of the tumor or in the interlobular spaces. There is no bleeding and if the projecting portions of the tumor are removed after ligation of the base, a clean wound is left. The suprapubic incision is on the bladder may be sutured without drainage and the patient may be discharged from the hospital healed in a short time.

Keyes gives a high initial anesthesia and injects 1 gm. of acetylcholine (1:1000) into the bladder. The catheter is left in for the subsequent irrigation. The virtue of this combined distention is twofold: viz. antispasmodic and the prevention of air embolism.

At operation a median abdominal incision is made from the pubes to the umbilicus. The bladder exposed and the wound protected by gauze pads. The bladder is inflated with air and fixed by clamps. The outer layers of its muscular wall are then incised and the clamps shifted into the new position as to pull it widely apart.

At this point the bladder may be punctured and if an operator is properly skilled into the incision there will be little soiling of the wound. A neuter procedure however is the following:

The bladder is deflated and the catheter withdrawn. The deeper muscle fibers are then incised. Under the bladder wall is exceptionally clear and the mucosa which appears as a flaccid bubble may be freed. The edges of this are seized and elevated with Allis clamps the membrane is punctured and the aspirator is introduced without the loss of a drop of fluid.

The bladder wall is automatically incised guided by information derived from preoperative cystoscopic examination. The edges of the incision are

elevated by Allis clamps until the fluid remains in the bottom of the bladder has been a purged and mopped away.

3 Retractors are introduced. The auto static retractor is much the best for the average case. Exceptionally Walker or Baringer retractors may be used in order to avoid bruising or crushing a tumor of the lateral wall or vault.

4 The patient is placed in the Trendelenburg position.

5 With the aid of a bladder light and a stick sponge the interior of the bladder is carefully inspected and the implantation done as follows:

a Large projecting tumor masses are seized about the pedicle with a small forceps (eg. Thompson's right angle tumor forceps) lifted and tied off with No. 0 plain catgut and the projecting portions are cut away or removed with the cautery.

b Small secondary papillary tumors are destroyed by fulguration or the use of the actual cautery.

c Covers the bases of lateral tumors and areas of deeply growing papilloma with metal "seals."

d A specimen is obtained.

e Radium emanation seals of gold or platinum each containing 1 to 2 mg. emanation are implanted by needle or catheter into the tumor at a depth of at least 0.5 cm. and at a distance of at least 1 cm. from each other through out the tumor mass.

6 The retractors are removed.

7 The suprapubic bladder incision is sutured by Lower's technique with plain catgut fortified by a Lambert suture of No. 0 chromic gut.

8 The gauze pads are removed. The abdominal wall is closed in the usual manner with a cigarette drain to the previous stage.

After the operation the patient will do better and respond more readily to the usual postoperative catheter precautions are taken.

The cigarette drain is removed on the third day. Between the fifth and the tenth days a cystogram is taken to prove the presence of the tumor as some of them may have fallen out.

Until the operation has produced accustomed to the progress of radium in the bladder will do well to make a cystoscopic examination of his patient every month or so after the operation for his own opinion. The exposure should make such an examination free months. Even the hematuria not be affected though it is certainly between tumor and the effects of radium. Biopsy by cystoscopic force may or may not help.

Recurrences if amenable to treatment at all are controlled by cystoscopic fulguration of the implantation of radium.

The cystoscopic implantation of radium is one or two seeds per tumor is sufficient. Keyes prefers two but in the case of cystoscopy the implantation in the tissues is optional.

Cystoscopic irradiation should be repeated at intervals of from three to six weeks.

rate three times as great. In the third decade of prostatic surgery it became recognized that symptoms of prostatic disease do not always mean benign prostatic hypertrophy. Surgeons have learned to differentiate clinically four conditions producing the same symptom—benign prostatic hypertrophy, prostatic cancer, contracture of the vesical neck, and penile cord bladder—and to apply to each condition the treatment it requires.

The author believes that an analysis of the results from three to five years after operation would show too large a number of patients who though having are still suffering from unrelieved urinary obstruction, persistent urinary fistulae, recurrent epididymitis, impotence, etc. Improvement in the morbid condition is to be expected through proper identification of the type of prostatic enlargement before operation and the choice of an operative method suited to that particular condition, viz. the suprapubic operation for interstitial hypertrophy of the lateral and median lobe, the perineal method for extravascular hypertrophy, and the punch operation for contractures of the vesical neck and for median bars.

Radiation of the epididymitis as a complication in 23.1 per cent of cases. As in 5 per cent it occurred previous to operation, leaving catheter drainage, he advocates bilateral castration as a preventive measure before dissection begins. He prefers penile amputation unless the systolic blood pressure is below 130. When the systolic pressure is below 130 he performs castration and either to nitrous oxide anesthesia or to ether.

He has shown 120 consecutive cases of benign prostatic hypertrophy of which thirty-eight were operated upon by the perineal route and sixty-two by the suprapubic route.

HENRY L. SIMPSON, M.D.

#### Lowley O. S. The Ideal Prostactomy Intert. J. M. d. S. 97:189

The cause of the great height is usually perineal prostatectomy will always be associated with the more advanced technique has reduced the mortality to the minimum.

Urologists all the prostate developed by enucleation from the posterior urethra into five lobes, the posterior lobe being practically a part of the capsule. With the exception of the anterior lobe, the prostate usually enlarges until puberty. Cancer usually begins in the posterior lobe.

In the examination the size, regularity and consistency of the prostate should be noted. Board-like hardness suggests carcinoma. A boggy prostate in young men suggests sarcoma. Perineal reflex usually indicates operation for the relief of the prostate. Capecot should be done first, and the physician should always be looked for. It is in the differential of reflexes and dilatation of the internal phallus. When a system is present, antisiphon treatment should be given before operation. Analysis of four hours specimen of urine should be carefully examined, a blood chemistry and

phenolsulphonephthalein test made and the blood clotting time determined.

After pre-operative catheterization the bladder should be partly refilled with boric acid. Lowley performs a two-stage operation and uses Kevon's suction drainage apparatus. He objects to an indwelling catheter. He delays the second stage of the operation until the patient is in condition for it and throughout the treatment he pushes fluids.

He performs the operation under sacral or parascapular anesthesia and prefers Young's perineal operation with the use of Crowell's tractor through the urethra. The posterior urethra is not opened. The ejaculatory ducts are not injured and epididymitis seldom results. The interior commensure is split without injury to the internal sphincter. Tags and half destroyed tissues are removed. A Pezzar tube size 26 F is introduced through the urethra and fixed. The prostate is packed with vaseline gauze, the levator ani muscles are sewed together and the skin is closed with silk worm gut.

In the after treatment the bladder is irrigated daily through the urethral tube. The packing is removed on the second day and the patient allowed to sit up on the fourth day.

BENJAMIN F. POLLER, M.D.

#### DuBose F. G. Simplified Prostactomy Int. J. M. d. S. 97:107

The author performs prostatectomy in two stages. The removal of the gland is always preceded by a suprapubic cystostomy. After the removal of the gland DuBose does not flush out the clots as this prolongs the oozing. For hemostasis he uses a gauze plug. After moderate distention of the bladder with boric acid he employs a 4 per cent apothecary's piece of tubing 2 in. long with a diameter of 1/2 in. inserted through the incision, the parietes being approximated above and below it by a figure of eight suture. Through a cork in an alar glass tube with an attached rubber hose is introduced into the tubing and the bladder thereby drained into a receptacle. The tube is clamped intermittently so that the bladder will be emptied gradually. Though the same tubing the bladder is irrigated with antiseptics for about 10 weeks until the kidney function is normal and there is no infection.

The author removes the prostate with two fingers of his right hand in the suprapubic incision and two fingers of his left hand in the rectum, peeling out the gland and leaving the capsule. A soft rubber catheter is introduced through the urethra and out through the incision. A gauze pad is wrapped around the end of the catheter and sutured the ends of the threads being left hanging. The catheter is then drawn back out of the urethra and the gauze packed into the prostatic bed, the end of the catheter attached to the thigh by a heavy tape and the threads clamped. After twenty-four hours the dressings are changed and the catheter is cut off at the meatus and withdrawn with the gauze by traction on the threads.



plasm or epididymitis is quite impossible before operation.

The testis usually occurs just above the testicle and within the tunica vaginal. The proximal cord is relatively normal while the distal cord epididymis and testicle are either black or gangrenous. On section a generalized thrombosis below the twist is revealed. Gangrene results very quickly in unreheved cases. Atrophy usually follows even if operation is done early.

If the testicle and epididymis are found viable at operation the cord should be untwisted, the tunica vaginalis inverted and the testicle sutured to the bottom of the scrotum. If the testicle is not viable as indicated by bleeding on incision orchidectomy should be performed.

Van der Poel reported the case of a patient who learned to untwist the cord when he had a relapsing torsion. Other prophylactic procedures consist in operating upon the undescended testicle before puberty and suturing it to the bottom of the scrotum. When the mate of an involved scrotally contained testicle shows abnormal mobility it should be sutured to the bottom of the scrotum after incision of the tunica vaginalis to prevent hydrocele.

Untwisting the untwisted testicle is a blind procedure whereas immediate delivery and unwinding in the proper direction followed by proper replacement and suture will save many of these organs from gangrene and lesions of the testes of atrophy.

Fifteen cases reported are presented with six illustrations. No death reported. The article is supplemented by a bibliography.

J. E. L. KIRK, TRICK, M.D.

Wesson M. B. Malignant Tumors of the Testicle and Scrotum. *Am. J. S. G.* 1917, 43.

The author reports four cases of cancer of the testis and one of sarcoma of the scrotal raphe.

In all doubtful cases, immediate surgical exploration is indicated because of the extreme malignancy of the tumors. A positive Wassermann reaction does not rule out malignant tumor. Pain is present in 50 per cent of the cases. The testicle is usually normal in shape. Its surface is usually smooth but may be lobulated. When the testis is not large the epididymis may be felt as a nodular cord but when there is marked enlargement the epididymis is flattened out. The tumor is freely movable and not an lucent but there is generally an accompanying hydrocele. The hydrocele should not be aspirated as this is a procedure of no diagnostic importance and is misleading and dangerous. The surface blood vessels of the tumor are greatly dilated and tortuous and the nodules large as in hamatocle and gumma.

The treatment of these types: (1) simple castration, (2) radical operation for teratoma, (3) castration and adiatomy for seminoma. Castration is justified only in case of benign tumors which are very rare. Radical operation is objectionable because of (1) the impossibility of removing the primary

lymphatic field completely without causing grave injury to vital structures, (2) the high operative mortality (24 per cent) and (3) its risk when in so many cases the tissue removed has no metastases.

In cases of seminoma, simple orchidectomy with high ligation of the cord followed by thorough irradiation of the lymphatic area is apparently efficacious even when abdominal metastases are present.

The first three cases reported were cured by orchidectomy and deep roentgen ray therapy. In the fourth case an incomplete course of roentgen therapy was given and proved insufficient to control the metastases. Case 5 a case of sebaceous cyst of the scrotum showed metastases after operation which were controlled by irradiation. Fibrosarcomata are not as favorably influenced by irradiation as other types of tumor.

GILBERT J. THOMAS, M.D.

### MISCELLANEOUS

Wesson M. B. The Clinical Importance of Buck's and Colles' Fascia. *S. G. C.* Oct. 1917, 97.

Buck's fascia described in 1848 invests the corpus cavernosum and embraces the corpus spongiosum in two layers, one going above and the other below it. It constitutes a continuation of the suspensory ligament above and the perineal fascia below and laterally. In 1871 Colles described a fascial layer attached to the external layer of the triangular ligament and the ramus of the pubes which runs around the dorsal aspect of the superficial transverse perineal muscles and then down and forward under the skin of the perineum and scrotum forming the outermost fibrous sac of the testicle. The Colles' fascia is continuous with the dartos muscles in the scrotum anteriorly with Scarpa's fascia and the fascia lata laterally with the superficial fascia of the gluteal region and posteriorly with the circumanal fascia.

If a rupture of the urethra occurs anterior to the urogenital diaphragm the extravasated urine is confined by the penile fascia and the swelling is circumscibed. The common pathway is ventral and the extravasation is confined temporarily within the superficial perineal interspace. As Colles' fascia prevents the spread posteriorly to the ischioanal fossa and laterally to the thighs the swelling tends to pass from the perineum down to the scrotum and then up over the pubes beneath Scarpa's fascia on the abdomen as far as the axilla. If the rupture occurs distal to the urogenital diaphragm the extravasated urine is held forward by Denonvillier's fascia. By dissecting up the peritoneum from the bladder the urine may reach the space of Retzius, extend up to the diaphragm or pass the inguinal ring and appear on the abdomen.

Five cases are reported. Case 1 was a case of hamatocle within Colles' fascia. The patient a man 43 years of age was struck in the left groin by the end of a board he was carrying. He experienced

The patient is allowed to sit up after forty eight hours and after a week is able to void. The wound heals in six weeks.

No infection or sloughing follows this operation and there is no shock or hemorrhage. The necessity for an indwelling catheter is avoided.

The author reports upon twenty two such prostatectomies with only one death a mortality of 4.54 per cent.

B. JAMES F. R. LEE, M.D.

**Davis F.** Perineal Prostatectomy Under Sacral Anesthesia. 187 Cases with One Death. J. Am. M. A. 1927, 1, 84.

Davis attributes the decrease in the mortality of both the perineal and the suprapubic prostatectomy to the following factors:

1. General recognition by surgeons of the value of pre-operative analgesia.

2. The growing appreciation by the laity of the increased danger of delay of treatment.

3. The more general use of sacral anesthesia.

4. More careful attention to hemostasis.

As a result of the factors prostatectomy has been rendered almost as safe in cases which formerly were poor risks as the external operation of herniotomy and appendectomy.

In the author's series of 187 consecutive cases of perineal prostatectomy performed under sacral anesthesia there was one fatality. The average age of the patients was 63 years. There were eleven cases of epithelioma, one of urethrorectal fistula, one of peritonitis, urinary fistula and one of unsatisfactory urinary control.

E. M. H. M.D.

**Kretschmer H. L.** Pe-sistence of Symptoms After Vagotomy. J. Am. M. A. 1927, 1, 19.

The author reviews sixty six cases in which vagotomy was performed by other surgeons. In twelve there had been two operations and in one three operations. The average time since the operation was one and one third years.

Thirty three of the patients stated definitely that they did not obtain any relief from the operation. Eleven declared that since the operation the symptom had ceased. Fifteen were undecided regarding the result. A complete cure according to the patients' statements had occurred in four cases. The patients stated that after the operation the improvement was slow but when massage and roentgen treatment were instituted a rapid partial improvement occurred. Three patients had been sterile since the operation. One reported only temporary improvement. In two cases the result are unknown.

The principal symptom as a urethral discharge in thirty two cases, frequency of urination in twenty five, nocturnal urination in forty and burning on urination in ten. Another symptom was pain in the testis, perineum, bladder or groin. Rheumatic symptoms of various joints were rather common.

Examinations to determine why the symptom persisted revealed two predominating lesions, viz:

(1) structures and soft easily bleeding granulations in the urethra and (2) extensive pathological changes in the prostate gland or seminal vesicles or both.

In the series of sixty six cases rectal examination revealed normal conditions in ten cases and pathological conditions in forty seven. In the records of ten cases the findings were not stated. In forty nine cases there was evidence of pus in the massage specimens.

The data for the urethral condition are rather incomplete. In twenty seven cases soft easily bleeding granulations or strictures were found but in ten cases neither strictures nor granulations were present. In the records of twenty nine cases no urethral findings are given.

In conclusion the author states that the failure of vagotomy to relieve the symptoms must be attributed to urethral lesions which cannot be cured by this operation. A successful result is predicted also in the persistence of chronic infections in the prostate and seminal vesicles which must be combated by appropriate local treatment.

CLAUDE D. ICKE, M.D.

**Campbell M. F.** Torsion of the Spermatic Cord. Report of Fifty Seven Cases. S. G. G. & Obs. 1927, 2, 35.

Torsion of the spermatic cord is an axial rotation of the cord in either direction with cutting off of the blood supply to the epididymis and testis and concomitant infarction in acute cases, systemic symptoms.

The predisposing factors are congenital malformations such as abnormal mobility of the testicle, imperforated scrotal folds, a long and lax gubernaculum, a paucity of mesovarium, an elongated globus minor or abnormal attachment of the mesentery and vessels to the testicle by a narrow pedicle. The exciting cause may be unknown in several cases, the condition has occurred during sleep. The most common cause is sudden muscular effort or violent straining. Other causes are trauma and sudden contraction of the cord. The condition occurs most often in young adults.

The onset of acute torsion is sudden with excruciating pain in the testicle followed by edema of the scrotum. The pain is often described as a burning or a dragging pain and frequently pain in the lower abdomen. High urinary frequency is a characteristic feature. Asymptomatic torsion has been noted. If gangrene develops the pain and the acute tender edema subside in cases not operated upon. Relapsing torsion resembles an exacerbation of a chronic epididymitis and lasts but a short time.

The diagnosis of torsion of the spermatic cord is not often made unless it is borne in mind in cases of epididymitis occurring in young men with no evidence of other urinary or urological disease or recent gonorrhea may be misleading. The diagnosis is based upon the tenderness of the testis and the edema of the scrotum. If the testis is in the inguinal canal the differential diagnosis from hernia is



Conner H M and Bumpus H C Jr Essential  
Hæmaturia and Its Possible Relationship to  
Purpura Hæmorrhagica 1 J M S 9  
1 1 76

When the finding of a competent complete urological examination are negative save for bleeding from one or both kidney when neoplasm lithiasis or infection do not eventuate and when good health is maintained for a long period the diagnosis of essential hæmaturia is justifiable. Unfortunately the diagnosis is interpreted by some as meaning that a gross lesion of the urinary tract has been overlooked a deplorable attitude which limits the etiology and discourages research into possible remote and obscure causes of renal hæmorrhage of this type.

Quincy in 1920 studied the renal pelvis in the operative specimens of two cases of hæmaturia of the so called essential type. In neither case were organisms demonstrated though in one there was distinct evidence of an inflammatory reaction with vascular injury. The hæmorrhage was from the pelvis and renal papillæ. Large thin walled vascular channels were seen beneath the pelvic epithelium and between the collecting tubules of the pyramids. Subepithelial hæmorrhages were present. Believing that focal infection might cause such lesions Bumpus and Meiss injected animals with cultures from the teeth and tonsils of nine patients with essential hæmaturia but the result of the experiment was negative.

The absence of bleeding in the so called blood dyscrasias suggests that it is different and it seemed that some cases of essential hæmaturia might be explained by a deficiency in the thromboplastic substances. Hæmaturias are not unusual in the purpuras and in hæmophilia. Blum and Praetorius have described purpura confined to the urinary tract with purpuric areas in the bladder. Conner observed several cases of hæmorrhage without local cause which he ascribed to a deficiency of coagulation factors. He believes that the same explanation may hold for other local hæmorrhages. If besides the coagulation defect there is a local predisposing condition such as increased vascularity of the mucosa or localized infection the possibility of bleeding is increased. The therapeutic effect of pelvic lavage with silver nitrate solution suggests a local lesion.

On the hypothesis of a defect in the factors of coagulation a series of thirty three unselected cases were studied. Particular attention was directed to the blood platelets the coagulation time the bleeding time and bleeding out of the urinary tract. In addition the calcium coagulation time and the prothrombin time were estimated in the majority of the cases. The family and personal history of bleeding were minutely studied. In the physical examination a search was made for evidence of hæmorrhage or enlargement of the spleen and in all cases a tourniquet test was done. The cases were divided into two groups twenty two in which the diagnosis was doubtful and eleven in which it was probable.

In Group 1 there were fifteen males and seven females. The oldest patient was 67 years of age and the youngest 10 years. The average was 42 years. The duration of the symptoms ranged from twenty two years to two days the average of twenty one cases was almost six years. There was gross hæmaturia in all but one case. The spleen was not felt in any instance. The tourniquet test was negative in seven and not recorded in three. On an average the erythrocytes numbered 4,344,000 the leucocytes 7,800 and the platelets 141,000 (normally 100,000 to 250,000). The hæmoglobin (Dare) was 72 per cent the coagulation time five and three tenths minutes (Boggs) and nine and four tenths minutes (Lee) the bleeding time one and eight tenths minutes and the calcium coagulation time the prothrombin time and the clot retraction time within the normal limits. In the eighteen cases in which the Wassermann test was made it was negative.

In the cases of Group 2 the details of the clinical and laboratory evidence did not present important differences from Group 1. The platelets averaged 131,000.

The average platelet count in twenty two cases was less than 150,000 that is a little more than half the normal. There was a high percentage of positive tourniquet tests. In Group 1 there were two cases with a history of easy bruising and in one of these a few purpuric spots had been noted before examination. In one case in Group 2 there was a history of easy bruising and occasionally a few purpuric areas. Symptoms and laboratory evidence of purpura hæmorrhagica appeared two and one half years after the onset of hæmaturia. At splenectomy in April 1925 hepatic cirrhosis with moderate ascites was found. In twelve cases of purpura hæmorrhagica in which operation was performed at the Mayo Clinic within the last three years the average pre-operative platelet count was 85,000. In cases of recent hæmorrhage without evidence of purpura hæmorrhagica the average platelet count was 231,000.

This study is presented in the hope that it will provoke further consideration of the blood in the investigation of these cases. The evidence is not sufficient to prove that essential hæmaturia is ever a localized purpura hæmorrhagica but in some cases is at least suggestive.

Herrold R D and Cul e H The Treatment of  
Acute Gonorrhœa with Antiseptics in Gelatine  
J Am M 1 927 1 459

Over a period of approximately two years the authors have been using as the initial treatment in gonorrhœa injections of 1,400 neutral acriflavine in 10 per cent gelatine. They describe the technique and report their results. In their opinion the use of neutral acriflavine in gelatine has given results distinctly superior to those of any previous routine treatment. The incidence of complications has been lower and in the uncomplicated cases there has

very little discomfort at the time of the accident but the next morning the scrotum was enlarged and the penis and scrotum were purple. A situation of very large quantities of blood which came from a rupture of one of the veins of the penis informed patients.

In the other was a case of a glans of little with urinary extravasation confined within Buck's fascia and swelling of the size of the penis. The patient was a man 24 years of age. For several months he had had a mass about the size of a pea attached to the bulb at the penoscrotal junction. The penis was cone-shaped with a large swelling at the base which apparently surrounded it. The glans was high and still he palpated in the bulb was beneath a cauterizable through an electrocoagulation treated with mercurochrome. The urinary function resulted.

In the third case was extravasation of urine within the scrotum with the use of a Hollmann dilator. The patient was a 44-year-old age complained of him to pain in the left side in the late suprapubic region. The urine was saturated with blood and three or four times a day had been under the scrotum. The patient was treated with a Hollmann dilator. The patient was treated with a Hollmann dilator. The patient was treated with a Hollmann dilator.

In the fourth case a man 25 years of age who had a large extravasation of urine which broke through the skin of the scrotum. The patient was treated with a Hollmann dilator. The patient was treated with a Hollmann dilator. The patient was treated with a Hollmann dilator.

In the fifth case an all cases developed within Buck's fascia during the junction of the penis with a result of urethral injury and urinary incontinence. The patient was a man 45 years of age. When he was in the hospital he had a urethral injury at the penoscrotal junction. On account of urinary frequency a cystoscopic examination was made. Two fundal ulcers of the urethra were found. The patient was treated with a Hollmann dilator. The patient was treated with a Hollmann dilator.

In the sixth case the author states that urinary extravasation occurs when there is a laceration in the mucous membrane. Although it is on the mucous membrane, a complication occurs after rupture of the urethra by external laceration or rupture of the urethra with structure. It is not unusual to find it following the

unsuccessful passage of a sound through or a velvet-eye catheter on a stylet. A stylet should be used only with alpha-eye catheters since the point is to slip through the eye of the urinary catheter and penetrate the piece of Rizzus the weaker portion of the urethra being the summation of the behind the triangular ligament. When for a while in passing a sound a slight tear is often made in the wall of the urethra. This usually heals spontaneously but if a solution of potassium permanganate is used afterward for irrigation and washing and extra attention results.

In the case of a glans of little may be felt well by urinary extravasation temporarily restricted to a localized portion of Buck's fascia. If it is evacuated by means of an external incision a fistula generally results. The operation of choice is a perineal urethral incision made with a cautery through an endoretractor. The method is satisfactory in giving solution of mercurochrome.

Buck's fascia, C. fasciae Denon, all is a triangular ligament and is considered an important landmark but the other is inflammatory processes. Hence when external incisions are completed by necrosis the fascia no longer acts as barriers and the involvement of the urethra is not prevented. Extra incision will not prevent it if there is drainage and necrosis can be prevented if sufficient percent mercurochrome is kept in contact with the tissue.

CLAYTON D. H. M.D.

Play R. I. and C. L. A. Method for the Cure of Urinary Incontinence. The Medical Review of the U.S. Army, 1917, 12, 120.

The author reports on cases which a transposition of the gracilis muscle was employed in an operation to cure urinary incontinence following suprapubic prostatectomy.

The method consisted in general of the encirclement of the corpus cavernosum together with the terminal portion of the transplanted gracilis muscle as described in the membranous urethra as follows: The operation consisted of three stages: (1) a perineal exposure through the midline of the scrotum; (2) a thigh incision with the gracilis muscle with conservation of the motor point (bladder nerve supply) and (3) the anastomosis of the gracilis muscle to the urethra. The operation was continued as shown in the general diagram. A preliminary incision of the transplanted gracilis muscle.

When the author reports on the total loss of continence prior to this operation he notes perfect urinary control for an average of 18 months. The author reports on the control of the continence of the patient.

Lastrum, 1917, 12, 120. The author reports on the control of the continence of the patient.

CLAYTON D. H. M.D.

In the cases of cancer of the testis the treatment consisted in epilimbo-orchidectomy alone in five cases, epilimbo-orchidectomy plus radium irradiation in one, radium irradiation alone in one, and X-ray irradiation alone in one. The malignant testis was undescended in only one of the eight cases. Of the five patients subjected to epilimbo-orchidectomy, two are apparently well and two were benefited. The patient with the undescended testis died from abdominal metastases six months after operation. The cases in which radium alone and X-rays alone were used were fatal.

BAKKER states that cancer of the bladder is best treated with radium as in this therapy there is no operative mortality. Prostatic carcinoma may be treated with radium and reduction of the residual urine by the punch operation. In carcinoma of the penis the treatment may consist in the dorsal slit operation, radium irradiation, deep X-ray treatment of the inguinal glands, and the use of the radium

pack. The inguinal glands are treated by a combination of deep X-ray therapy and the radium pack with the implantation of radium in any places suspected to be involved. In teratoma of the testis irradiation has given wonderful results. The testicle is thoroughly irradiated with the radium pack and the course of the spermatic vessels on the side affected is irradiated with the radium pack or deep X-ray therapy. The only operation that is done is the removal of the testicle under local anesthesia. The cord is cut first and the testicle then removed from it bed. In order to prevent the dissemination of the carcinoma, care is taken in the removal of the testis not to squeeze it. Of forty-nine patients with inoperable metastases, 20 per cent are free from signs of the disease. The longest period of freedom from signs of the condition has been six years. All the results seem to indicate that irradiation gives a better prognosis than operation.

WILLIAMS BEN. M.D.



The endotheliomata are characterized by a laminated appearance of the cortex slowness of growth and the production of a diffuse swelling of the shaft of the bone which is usually local but may be multiple. Metastasis occurs but a favorable temporary reaction may be obtained with radiotherapy.

Fibrous sarcoma apparently arises from the periosteum. It causes bone absorption by pressure. It is usually of rather slow growth and fairly well encapsulated.

Osteogenic sarcoma and myeloma are described with special reference to the clinical and roentgen picture.

In conclusion the author discusses metastases to bones of tumors in various tissues and the areas of predilection for such growths.

The article contains case histories and illustrations of the various types of tumors.

Fidler A. G. T. The Experimental Production of Acute and Chronic Arthritis and Articular Neoplasms. *British Medical Journal* 1927 1 39.

The author ventures the opinion that the proliferation in bone and cartilage occurring in osteoarthritis is a term late between an inflammatory process and neoplasia. In attempts to produce the inflammation in the joint of the rabbit by the same agent radium was used.

A glass tube containing 0.038 mgm of radium bromide placed in the knee joint of a rabbit produced an inflammation similar to osteoarthritis in nine to ten weeks. 1 mgm of radium in three platinum tubes produced a late fulminating destructive arthritis in few weeks. 44 mgm of radium in one platinum tube produced a chronic or rheumatoid arthritis in months and 0.46 mgm of radium in two platinum tubes produced a large abscess and a sarcoma in fourteen months.

Case histories illustrating gross tissues and malignancies are presented. The author states that the inflammation of radium in glass produced qualitative changes only, larger amounts in platinum produced qualitative changes and smaller amounts in platinum produced regular proliferation and malignant growth.

A. J. W. LARSEN, M.D.

Kilgus J. M. Jr. and Holmes G. W. A Review of 450 Roentgen Ray Examinations of the Shoulder. *Journal of the American Medical Association* 1927 1 98.

In order to correlate the roentgen examinations in shoulder cases with the findings so frequently the author reviewed all shoulder cases seen in the roentgen department of the Massachusetts General Hospital in the period from January 1, 1925 to June 1, 1926. Three hundred of the 450 cases were selected from the roentgen tabular statement in ninety seven shoulder examinations. Sixty four of these were of the type of subacromial bursitis and the re-

mained various lesions of less frequent occurrence.

In the discussion elicited by the review attention was called to certain anatomical and functional peculiarities of the joint which not only tend to prevent the production of changes seen with similar pathological processes in other joints but render such changes undemonstrable roentgenographically when they are present. The common occurrence of shoulder pain with other conditions as a referred symptom without local pathological changes explains many negative findings. The more common shoulder lesions causing pain and disability which are not demonstrable by roentgen examinations were found to be postural abnormalities subacromial bursitis tenosynovitis myositis moderate attrition moderate relaxation of the capsule and a tight axillary capsule. Those that might be demonstrated with the X-ray included fractures dislocations sepsis foreign bodies tuberculosis lues arthritis separation of the acromioclavicular joint extreme relaxation of the capsule extreme attrition and subacromial bursitis.

The importance of a proper technique to obtain all possible information is emphasized and the technique used by the author is described in detail. The following conclusions are drawn:

1 To reduce the number of negative roentgen examinations of the shoulder the cause of referred shoulder pain should be found by thorough examination.

2 Both under exposed and normal films should always be taken with the arm in external rotation.

3 The tube should always be accurately centered.

4 Related capsule will not show unless some force is used to pull the head of the humerus away from the glenoid. ADOLPH HARTING, M.D.

Asbury E. Spondylolisthesis with Especial Reference to the Cauda Equina. *Journal of the American Medical Association* 1927 1 555.

The author discusses spondylolisthesis as a cause of backache and lesions of the cauda equina and reviews a series of twenty seven definitely proved cases.

Subluxation of the fifth and fourth lumbar vertebrae was described by Kilian in 1853. Neugebauer after a lifetime of study of the spondylolisthesis concluded that the cause is a defect in ossification of one or both sides of the vertebral arch or a fracture of the articular processes of the vertebra. He emphasized the importance of injury as a factor. Blake in 1866 reported a case resulting from a sudden increase in weight during pregnancy.

The etiology in most cases is traumatic. Important congenital defects favoring the condition are bifid neural arches and separate neural arches.

The patients whose cases are reviewed range in age from 13 to 65 years. Over half were in the third decade of life. In fifteen cases definite trauma played a part. In five cases there was a congenital defect.

In thirteen cases the symptoms developed suddenly following severe trauma. In nine their onset

# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS ETC

Bloodgood J C Wt at E ery Radiologist Sh uld  
Know About Bone Tumors Radwlg 927  
11 19

X ray examination is becoming more and more the method of precision for the diagnosis of bone tumors. However the earlier the stage of the lesion and the more intact the cortex the more difficult is the roentgen differential diagnosis. Certain tumors such as the sclerosing type of sarcoma and sarcoma with diffuse osteoporosis (Ewing's type) are especially difficult to diagnose.

The value of X ray examination can be increased by submitting the roentgenograms of cases difficult to diagnose to other roentgenologists for their opinion. In the majority of surgical clinics the diagnosis of bone lesions from the roentgenogram is usually more accurate than their diagnosis from biopsy. If the X ray examination fails biopsy becomes the next method for accurate diagnosis.

Biopsy has well recognized dangers and must be performed under the protection of thermal and chemical cauterization to prevent contamination of the wound with tumor cells. Pathologists should be trained to make the diagnosis from fresh frozen sections. The greatest danger from biopsy is the interval of time elapsing between the removal of the tissue for diagnosis and the resection or amputation. If there is any doubt from the X ray examination or the microscopic study as to the presence of definite malignancy it is best to treat the condition as benign because the chances of its being benign are greater than those of its being malignant and the probability of curing a malignant condition is as yet far too slight to justify an amputation or resection unless the diagnosis of malignancy is certain.

In giant cell tumors resection treatment alone is still in the experimental stage. Curettage properly performed should yield a cure in practically every case. In all cases of central lesions of the epiphysis in which the bone shell is intact exploration should be done. If the bone shell is partially completely destroyed there is no objection to giving the patient the benefit of radiation first. This applies also to central tumors of the shaft.

Up to the present time practically the only verified cures of sarcoma of bone are those which have followed amputation for lesions of the lower extremity below the upper third of the femur. In the author's list of cases and in those collected by Codman there are no verified cases in which a cure has followed an amputation of the upper extremity of the femur. In this regard if resection with restoration of function cannot be demonstrated is necessary.

Although it has given a successful result from time to time radiation treatment has not as yet accomplished very much. It has been more beneficial in sarcoma of the soft parts. No harm is done by preoperative radiation but operation must not be long delayed. In secondary bone tumors radiation is indicated for the relief of pain but does not cure.

CARLES H. HEACOCK M.D.

Meyerding H W The Pre Operative Differential  
Diagnosis of Bone Tumors J A M A  
927 13 191 3/5

The author has slightly modified and rearranged the classification of bone tumors of the Clinical Pathological Association and Sarcoma Registry so that the tumors progress from the traumatic and infectious through the benign to the most malignant types as follows:

- 1 Inflammatory lesions including bone tumors (osteomyelitis) traumatic (callus ossifying hematomas) syphilitic infection (non suppurative osteitis of Garre Rodés abscess tuberculous)
- 2 Osteitis fibrosa cystica cysts
- 3 Benign osteogenic tumors osteosarcoma chondroma fibroma
- 4 Giant-cell tumors
- 5 Angioma
- 6 Endothelioma (Ewing's tumor)
- 7 Periosseous fibrosarcoma
- 8 Osteogenic sarcoma
- 9 Multiple myeloma
- 10 Metastatic tumors

With a complete histological examination and urinalysis a Wassermann test and roentgenogram an expert may diagnose or exclude most of these cases. There is a small group however in which a diagnosis is impossible until the tumor has been explored and its macroscopic and microscopic character has been determined.

The inflammatory lesions are discussed with special reference to the radiographic and roentgenological findings in this symptom.

The cystic conditions particularly osteitis fibrosa cystica are less likely to be mistaken. These are usually central in diaphysis and rarely involve the epiphysis. Their growth is slow with little or no pain and the cystic areas usually recognized until a roentgenogram is made.

The benign osteosarcoma benign osteosarcoma and fibroma are described. The central chondromata may degenerate and produce cysts with resulting pathological fracture.

Giant cell tumors are rather common. They cause considerable destruction but osteolytic and produce few tufts and marked deformity.

lown along the midline and then place an osteo-  
perosteal graft in each of the vertebral grooves  
in their second modification they do not fracture  
the articular processes but bring the spinous pro-  
cesses down in one vertebral groove and place an  
osteoperosteal graft in the other. After the opera-  
tion plaster immobilization is continued for from  
three to eight months depending upon the cir-  
cumstances of the condition and the patient's weight.

The operation is not serious and there is little  
haemorrhage if the graft is pressed tightly against  
the bone and held by a tampon. A specimen removed  
five months after the operation from a patient who  
died of tuberculous meningitis showed a solid block  
of bone. The late results have been excellent in most  
of the cases. The authors believe that the method is  
better for young children than Albee's method.

In the discussion of this report TUFFIER said that  
he had used the Albee and other methods in a large  
number of cases of Pott's disease in a large number  
of adults in the past twelve years. He has had much  
better results from Albee's operation than from  
posterior vertebral osteotomy. The result has been  
good in fact to suggest that the operation has  
more other action than that of immobilization.

SURGERY said that he examined Dehelly's report  
and found the pathological condition fully immo-  
bilized but that he has seen the same result from  
different techniques. He believes that Albee's  
technique is usually to be preferred because it is the  
simplest, the quickest and the most benign but  
when the gibbosity is quite acute surgery is apt to be  
in the dorsal region the osteoperosteal graft may be  
better.

ALBEE C. MORAN M.D.

DUAL P. Albee's Operation in Pott's Disease in  
the Adult (X-ray photo of the patient and of the  
method of the fixation) B. J. J. 1915, 1, 1  
de J. 961, 45

Duval has performed Albee's operation in ten  
cases of Pott's disease in a child and has had late  
report on the results. One of the patients died  
probably from bilateral renal tubercles. The  
four others are well and the other two died  
three and six and a half years respectively after  
the operation.

In Duval's opinion the effect of Albee's operation is  
simply an immobilization but the immobilization  
is much more perfect than can be accomplished  
by any external method. Some are in op-  
position to the operation in all cases of Pott's disease  
without discrimination on this point explaining the  
poor opinion on its general prevalence in America.  
Report. The perfecting of the Albee operation when the  
multiple foci of tubercles when the gibbosity  
is very large and when osteolysis is extensive  
is rapid and in the future an improved method of  
fixation of the local and general condition. The true  
indications for the operation are the cases. The  
early immobilization is accomplished by the plaster  
the pressure is for the use of a cast should be  
worn for six months until a solid block of bone

is formed. This can be determined by roentgen  
examination.

Early operation is justified only when it is sim-  
ple and free from danger. For this reason Duval  
prefers Albee's operation to the more complicated  
procedures of Hibb, Calve and other. It is essen-  
tial to place bone between the slit spinous processes.  
Duval does not fashion the graft carefully and fit it  
to the gibbosity as Albee does but takes several  
pieces of bone cut from the tibia with scissors and  
places them over or beside the focus in the spine in  
future the aponeurosis over them. The operation  
does not take over twenty minutes.

ALBEE C. MORAN M.D.

Quick B. The Treatment of Acute Suppurative  
Arthritis of the Knee Joint B. J. J. 1915, 1, 1  
271, 39

The treatment of severe sepsis of the knee joint  
by transverse arthrotomy makes considerable de-  
mand upon both the patient and the surgeon as  
the convalescence is long and trying. However a  
partial bony ankylosis of the joint is very much  
more acceptable to most persons than an artificial  
leg. Experience alone will tell when to open and  
drain in such cases and when to amputate. To late  
the author has reported seventeen cases treated by  
arthrotomy. He states that he has reason to believe  
that bony union occurred in all.

S. C. W. L. D. R. M.D.

Clifford J. The Osteoperosteal Graft in Dan-  
glefoot B. J. J. 1915, 1, 1

The osteoperosteal graft as used by Morrison and  
McKenzie in paralytic danglefoot has been em-  
ployed by the author in preference to a trangle tomy  
and to the fixation of the trangle to joints. Bone  
growth of the trangle is also unjoint.

In the case of a boy 14 years old two posterior  
osteoperosteal grafts were used for the correction  
of danglefoot. After fixation for six months stability  
of the foot was obtained but rotation of the lower  
epiphysis of the tibia had occurred. The rotation  
was undoubtedly due to retardation of the growth of  
the posterior portion of the epiphysis which was  
fixed by the osteoperosteal graft.

Correction must be taken in the placement of osteoper-  
osteal grafts. The graft should never extend across  
the epiphyseal line. They are to be used as osseous  
ligaments and should obtain sites of implantation  
corresponding to the ligamentous attachments.

FREEMAN A. CHURCH M.D.

## FRACTURES AND DISLOCATIONS

Campbell W. The Only Graft in the Treatment  
of Ununited Fractures of the Long Bones  
S. J. J. 1915, 1, 1

In this article an additional sixteen cases are  
added to the seventeen cases of ununited fracture  
reported by Campbell in 1914. The bones involved  
were the femur in six, the humerus in twelve, the





precaution. Severe crushing injuries and fractures appeared to be typical. The force producing the injuries was therefore usually severe. Not rarely infection and gangrene developed.

Special attention was paid to a careful roentgen diagnosis—plates taken in different planes sometimes stereoscopic exposures never mere fluoroscopy—and to exact reduction under ethyl chloride anesthesia. Extension was applied only in fractures of the femur although fractures of the leg in the lower third fractures of the surgical neck and in elderly persons supracondylar fractures of the humerus. During the last ten years wire extension has been used. The Steinmann nail is not favored because of the danger of infection and the pains on prolonged recumbency which are associated with its use. When wire extension is employed these sequelæ do not occur.

Great importance was attributed also to functional motion therapy according to Roehrer's method. Therefore the fundamental principle of immobilization of adjacent joints was disregarded and the circular plaster cast was omitted. The fact that even the observance of this fundamental principle—in fractures of the leg—for example—does not always assure absolute immobility of the fracture fragments led von Bunn to substitute for the circular cast a plaster splint applied directly to the skin with constant traction on the fractured extremity. This gives very good results also in fractures of the upper arm. Extension is still the normal procedure only in fractures of the femur but may be of value as an aid to reduction in cases in which the resistance of the muscles renders difficult the retention of the fragment and in cases of compound fractures in which open treatment of the wound is always given.

In the cases reviewed medicomechanical treatment was begun a few days after the injury. This approximated as closely as possible the physiological movement. For psychical reasons active motion of the fractured extremity was also necessary. The medicomechanical treatment paralleled the anatomical healing. As a result of the observation of this basic principle the duration of the treatment was relatively short, exceeding the time necessary for consolidation by only from ten to twenty days.

The functional results were always very good even when the anatomical results were not. Frequently the good anatomical result achieved by open reduction was followed by a very poor functional result. The use of Lane's splint is to be considered only for subcapital fractures of the upper arm and certain fractures of the forearm. In the cases reviewed compound fractures were never immobilized by foreign bodies.

Mining conditions are favorable to the healing of fractures as coal and stone dust are practically sterile. This fact and the favorable age of the patients explain the very satisfactory results of treatment with rapid recovery of the ability to work and low workmen's compensation.

The article is supplemented by numerous tables roentgenograms of interesting cases and illustrations of special methods of treatment.

HICKENBROCH (2)

McBride E D. Dislocation of the Semilunar Bone. Neurospastic Fixation of the Hand. A Deformity Characteristic of the Injury. *J Ch S* 9: 1927 21: 534.

Dislocation of the semilunar bone is the third most common injury of the wrist. The prognosis is unfavorable unless the condition is diagnosed and properly treated early. Eight cases are reported. Four were treated by excision of the dislocated bone, three by open reduction and one by non-operative measures. In the cases treated by open operation the results were very satisfactory.

All of the eight cases showed an attitude of the hand for which the author suggests the term neurospastic fixation. The fingers are usually flexed slightly more at the terminal joints than at the middle phalangeal joints while the knuckles are only slightly flexed or fully extended or hyperextended. There is some fullness at the base of the palm near the middle of the wrist. Voluntary flexion of the fingers is possible but closing of the fist is impossible. A spastic condition of the intrinsic muscles of the hand is present and may persist for several weeks. There is a glove-like paresthesia.

The author reviews the opinions of various surgeons regarding the treatment of dislocation of the semilunar bone and draws the following conclusions:

1. Reduction by manipulation within three days can usually be accomplished with a good functional result.
2. Excision after two or three weeks results in good function but some permanent weakness.
3. Open reduction promises as good a return of function as removal.
4. In untreated cases there is disability of from 25 to 75 per cent.
5. In old cases open reduction should not be attempted; excision is better.
6. In the presence of marked fixation and degenerative change, removal will relieve pain but will improve function only slightly.

FREMONT A CHANDLER M D

Zur Verth Fractures of the Finger (Fracture du Chien de l'ongle). *Z Ch F* 1: 1906 12: 17.

Since the discovery of the roentgen rays fractures of the fingers have been diagnosed much more frequently. Particularly the uncomplicated fractures and dislocations of the joints were first revealed by roentgenograms. Roentgenograms also frequently show healed fractures. The author discusses the frequency of fractures of the different fingers and joints and the most common types of fractures and dislocations.

The typical fracture of the proximal phalanx is the transverse or oblique fracture of the shaft. Fre-



# SURGERY OF THE BLOOD AND LYMPH VESSELS

## BLOOD VESSELS

Borcherds W M The Treatment of Varicose Veins by Organic Arsenic Injections *Brit Med J* 1917 1 375

Borcherds reports a case of syphilis with varicose veins of the leg in which he cured the varicosities with injections of salvarsan. He has cured piles in the same way but does not state whether they were or were not associated with syphilis. He reports two cases of sleep talking cured with salvarsan and states that he has obtained good results with salvarsan also in cases of varicose ulcers.

HOWARD A McK. 1 Brit Med

Wheeler S W I deC Thrombo Angiitis Obliterans *Brit Med J* 1927 1 25

Smith R P and Patterson D W Thrombo Angiitis Obliterans in Association with Syphilis *Brit Med J* 1927 7

Wheeler discusses the nature symptoms treatment and prognosis of thrombo angiitis obliterans and reports two cases. Neither of his patients was a Hebrew and neither had syphilis. Both had serofibrin and both were heavy cigarette smokers. One lost portions of all four limbs during a period of about ten years. The other had the acute variety and lost the left leg above the knee within a few weeks of the first attack of pain in the calf.

Smith and Patterson report the case of a man 50 years of age at the onset of British nationality. There was no history of syphilis but the Wood-Wassermann test was strongly positive. The symptoms included pain, coldness of the feet, intermittent claudication, erythema, evidence of trophic disturbances and gangrene of a toe. The gross appearance of the amputated limb and the microscopic appearance of the main arteries, veins and nerves are described.

The thrombo is deemed to have originated in the popliteal artery and to have spread progressively downward to the anterior and posterior tibial arteries. (R R STEINKE M D)

Holman E Observations on the Surgery of the Large Arteries *J Surg* 1917 15 3

Ignition of the large arterial trunks should be a companion to occlusion of the corresponding vein. Under certain circumstances it is preferable to ligate the vein proximal to the site of the arterial ligation. Ligation of the popliteal artery should be a prerequisite of the common femoral ligation. The entrance of the deep femoral artery into the thigh in the experimental animal the incidence of gangrene was greatly decreased by the application of this rule.

A coarse ligature such as broad tape should be applied to the large arterial trunk. Fine ligatures cut through the arterial wall rapidly.

If feasible division of an artery between ligatures should supersede ligation in continuity as it decreases the possibility of fatal erosion of the arterial wall.

Partially occluding ligature and crushing ligatures applied to large vessels may cause fatal rupture of the wall of the vessel. The ligature should be tied so that it will occlude the vessel but not crush it.

Proximal ligation of the artery for an arterial venous fistula is contraindicated not only because of the imminent danger of distant gangrene but also because it is entirely futile in eliminating the fistula if gangrene is averted.

Following operations upon the large vessels the wound should be completely closed without drainage. (SMITH R P M D)

## BLOOD TRANSFUSION

Cone S M Leukæmia—A Sarcoma Bone Evidence Report of Two Cases *Ch S* 1917 42

Leukæmia resembles a coma in a fluid medium. It acts like a malignant growth clinically. In the two cases reported by the author the morbid anatomy and histological pathology indicated it to be of a sarcomatous nature. In both cases the myelocytes maintained their place in the blood vessels in an orderly way but at various points—in the brain, liver, intestine, spleen, serous membranes and bone—there was a break and invasion occurred as in sarcoma else where. Bone absorption by direct action of the tumor cells was noted and there was reviving and proliferation of the bone cells such as are seen in other sarcomata of bone.

J EPH K. SARAT M D

Cornilis F Haemolysis in Blood Transfusions on the Basis of Experiences in 500 Transfusions (U b Haemolyse bei Bluttransfusionen an Haemolyse) *Archiv f. Klin. Ch.* 1926 1 577

Following a brief review of the history of blood transfusion the author discusses the preliminary test from the theoretical and practical viewpoints. On the basis of 500 transfusions of his own he concludes that the procedure should always be preceded by a preliminary test of the agglutination especially the determination of the blood grouping according to the Landsteiner-Jansky method. When test sera are not available crossed serological tests or a direct test of agglutination with a drop of the recipient's serum and a drop of the donor's blood should be made.



# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

McKenle D The Treatment of Burns B I  
W J 19 14

For the treatment of burns the author advocates immediate removal of all dead tissues under general anesthesia in the luteal preferably with ether. Free removal of both the skin and the deep margin is indicated. The presence of dead tissues results in toxemia from absorption of the products of autolysis and usually a degree of toxemia at the loughing stage.

Following early delirium the author treats the affected part with hot hypertonic saline solution - a 5 percent solution if the demarcation was exact and there is no danger of hemorrhage from oozing and a 3 percent solution when the oozing is extensive. Gauze is wrung out of the solution and applied to the raw surface in close contact. It is then covered with wool. It is removed with the aid of irrigations of warm saline solution instead of blotting. In most cases parts of the field are ready for pinch grafts within a few days.

Be cause of the flexibility of the resulting scar tissue contractures and disfigurement are minimal. The convalescence is aseptically and free from discomfort.

Strunk W E Contribution to Elastic Surgery  
I S J 471 8

Results of a series of experiments are indisputable. A stage is taken of the fact that skin easily stretches when it is put under tension. In a case cited there is a large area of carrying over the entire surface of the neck due to roentgen ray exposure in the treatment of cancer. As much of the skin was removed as would allow closure of the edges of the wound without tension. Only skin and subcutaneous fat were removed. Undermining of the skin is allowed in order to prevent the formation of adhesions. Approximation was obtained in one third of the case area. The patient was advised to stretch the skin by movement of the neck and by massage. Within 1 month the skin was quite loose and pliable and the area only two thirds its original size. In the next 1 month similar to the first was then performed on the half of the remaining portion of the area removed. Six months later at a third operation the remaining scar was excised. To lay only a small difference. In a number of other cases in which the results were excellent.

It is possible to suggest a method for cases in which a graft of the sphincter and muscle has

been destroyed and repair by drawing the ends of the muscle together would be unsatisfactory or impossible. Through a curved transverse incision along the vaginocutaneous margin the levator ani muscle is isolated and sutured across the anterior rectal wall as in an ordinary perineorrhaphy. The ends of the sphincter are then isolated and sutured to the levator ani being brought separately together as possible without too much tension. Usually this will close the anus and will allow it to fit snugly around the inner finger introduced into the rectum. The wound is left open and packed with soft gauze. The gauze is held in position by a suture placed through the edges of the skin and tied loosely. The removal of this gauze after about eight days leaves a granulating wound which heals slowly. The resulting scar tissue is in itself uniting the edges of the sphincter and if the sphincter nerve supply is unimpaired normal control is usually regained. If it has been injured normal control will be regained but partial control will be possible by voluntary elevation of the levator ani. Preoperative preparation by castor oil and laxatives is suggested. Following the operation constipation is induced by paregoric. After ten days olive oil enemata twice daily and in operation several times daily are administered until satisfactory bowel movements are secured.

Certain methods of the Kandel operation for elephantiasis usually seen in America is a equal to partial or complete obstruction of the inguinal lymph node. It is usually treated by a simple lymphadenectomy. The superficial lymphatic system alone is involved. This system is separated from the deep system by the aponeurosis covering the muscles. The Kandel operation is performed with the idea of connecting the two systems by removing a large amount of the aponeurosis. A large portion of skin and fat and subcutaneous tissue is removed at the same time. When the raw surfaces are approximated lymphatics and new blood vessels form and connect the superficial system with the deep system. In the author's opinion in the removal of large amounts of diseased tissue is very important. The patient is carefully prepared for operation by rest in bed with elevation of the involved extremity and the application of bandages to reduce the edema as much as possible. Postoperatively the patient is carefully watched and treated to prevent the severe shock that often follows a radical operation of this type. After the operation bandages must be worn indefinitely. Occasional rest in bed with elevation and careful bandaging of the limb will be of great benefit if extensive edema develops subsequently.

In 5 percent of the autopsies the preliminary serological test were found incorrect. In the first case 0.005 ccm of the blood were transfused without injury in a patient of Group 3 to a patient of Group 2. The serological reactions in the blood also showed agglutination between the serum of the recipient and the blood of the donor and vice versa. When the transfusion was repeated one day later there was a positive reaction in that the recipient in Group 1 (the donor) was a rabbit. In the second case the serological test between the donor's serum and the recipient's erythrocytes showed marked agglutination and in the third case the test with 0.05 ccm of a 1:10 dilution occurred. In the other cases the patients and donors belonged to Group 1 and the serological test also showed agglutination and hemolysis between the serum of the recipient and the erythrocytes of the donor and in preliminary blood tests in the blood occurred with 0.05 ccm and in a second test with another 0.05 ccm in the patient's blood occurred in the serum. In these cases all the serological tests showed agglutination and hemolysis between the serum of the recipient and the blood of the donor.

In 1 patient a serological reaction occurred in the serum of the donor and in the blood of the recipient. In the other cases the serological reaction occurred in the blood of the donor and in the serum of the recipient.

### LYMPH VESSELS AND GLANDS

In the first patient the lymphatic system of the donor was found to be normal.

In the second patient the lymphatic system of the donor was found to be normal.

frequently than is commonly supposed. In the early stages it is a local process and is amenable to complete surgical cure if the involved lymph nodes are accessible. Eventually it becomes generalized and is then fatal. A clinical diagnosis in the early stages is possible but extremely difficult and requires the patient taking a histological and roentgen pathologic and surgical.

The disease begins in the lymphatic system in the retroperitoneal or the paracaval glands of the anterior or posterior cervical region. In the histological case it is invariably unilateral and general or partial lymphadenitis is not amenable to the late stages. The glands become enlarged, tremulous, and do not cause pain or illness. Visceral metastases are extremely uncommon. The course of the disease is usually fatal.

Lymphoma of the cervical lymphatic system closely resembles primary epithelioma of the retroperitoneal gland. A clinical differentiation is often impossible. In the histological procedure for differentiation the following characteristics are present when the presence of either of these conditions is suspected. If the tumor is more cellular than a lymphoma, a black section of the cervical gland will be found.

In the microscopic differential diagnosis the tumor is found to be a lymphoma. The tumor is found to be a lymphoma. The tumor is found to be a lymphoma.

The author reports a case in which a diagnosis of primary epithelioma of the cervical lymphatic system was made. The condition was histologically confirmed as a fatal terminal condition.

13 MAY 1934

nous hemangioma. Most of the cases are treated with radium but in a few the roentgen rays were used. The author recommends the expectant treatment of the vessel, the main principle of which is the use of relatively weak doses at considerable intervals each to be given as a rule 20 per cent less than the erythema dose. The hemangiomas are carefully watched between the treatments and the dose is not repeated until improvement is noted. In many cases only one such treatment is required to initiate a process of healing which resembles spontaneous healing. This method gives a better cosmetic result than any other. In treatment with the roentgen rays the dose is usually the skin erythema dose with a filter of 4 mm of aluminum.

The result of the radiological treatment of hemangioma capillare has been a cosmetic restoration only in children under 1 year of age and only in cases in which the size of the hemangioma did not exceed 10 to 35 mm. In more extensive hemangiomas capillari the technique employed at Kadumhemmet has not led to cosmetically satisfactory results. It is probable that cases be received for treatment early possibly during the first year of life.

In all of the fifteen cases of hemangioma telangiomatic restoration was obtained following thermopuncture of the central capillaries.

One hundred and eighteen cases of a hemangioma cavernosum superficialis have been treated according to Forcell's method. In about 70 per cent cosmetic restoration was obtained and in about 30 per cent the treatment resulted in improvement. In 4 per cent only no application was necessary. In fifteen cases of radium irradiation was given in those which produced an inflammatory reaction of the second degree. In 30 per cent of these cosmetic restoration was obtained but in 70 per cent a further change developed. Of four cases in which further damage produced an inflammatory reaction of the third degree atrophy developed in two. Hemangioma of the calvaria have been successfully treated by Forcell's method without causing permanent dilatation.

Tumefaction of hemangiomas have also been removed by the treatment without com-

plications. The result of the treatment is not influenced by the age of the child. As the hemangioma cavernosum frequently takes on a rapid growth during the first year of life it should be treated during that time. The size of the hemangioma does not affect the therapeutic result to any marked degree.

Of the fifty-nine cases of hemangioma cavernosum profundum forty-five were treated according to Forcell's method. In twenty-eight of these cosmetic restoration was obtained and in seventeen there was improvement. No atrophic changes developed. Elimination of primary beta radiations by means of a 2 to 3 mm extra lead filter has proved of great importance in the attainment of a satisfactory cosmetic result. Treatment with the roentgen rays in a small number of cases resulted in improvement but not in cosmetic restoration.

Eleven cases of subcutaneous and cavernous lymphangioma were treated. In two cases in which the treatment was given with a 2 or 3 mm extra lead filter and an inflammatory reaction of the second degree was produced cosmetic restoration was obtained. In the cases in which the treatment was given with a 0.5 mm extra lead filter or four sheets of paper cotton wool and a sterofl and an inflammatory reaction of the first degree was produced there was no obvious effect. More intensive irradiations (three through 3 or more millimeters of lead) can be obtained with the radium holder. A sufficiently deep effect can probably be obtained with this apparatus with consequent disappearance of the lymphangioma and without the risk of secondary atrophy of the skin.

The only forms of epidermal nevi treated at Kadumhemmet were the nevi pigmentosi and nevi pigmentosi et pilosi. Eleven cases of the former and thirty-five of the latter were treated with radium. In the cases in which the nevus was successfully removed the dose produced an inflammation of the second or third degree. With such treatment there is the risk of secondary atrophy. When electrocoagulation was substituted for radium in these nevi cosmetic restoration was obtained in every case regardless of the size of the nevus.

## PHYSIOLOGICAL METHODS IN SURGERY

## ROENTGENOLOGY

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teresting and useful piece of work. The  
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theoretical part is sometimes there as a  
marked one in the text to refer to the  
of the text. In this case the  
theory will be a waste of time and  
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**RADIUM**

Andrien C. The Radium Treatment of Hemorrhoids of the Lymph Glands. *N. Y. J. Surg.* vol. 1, part 1, from R. J. Hemm. 1909.

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sigmoid and cæcum are very favorable because the interfering or filtering lymphatics can be easily removed.

The two stage operation has materially reduced the mortality in these cases. Practically all operative deaths are caused by shock due to hæmorrhage, sepsis or both following the second operation since in this procedure large connective tissue spaces and the peritoneal cavity are opened. The author therefore devised a two stage operation in which most of the work is done at the first operation. By such an operation it was possible to remove not only the mesosigmoid but also all of the gland bearing connective tissue in the hollow of the sacrum. The older operation did not reach all of the upper lymphatics in the mesosigmoid. By ligation of the superior hæmorrhoidal artery where it crossed the promontory of the sacrum all danger of hæmorrhage was at once removed.

Convalescence following the first operation was usually quite stormy because the connective tissue in the hollow of the sacrum which had been destroyed by ligation of the vessels usually sloughed and an abscess developed and perforated into the rectum. It was therefore necessary to wait until this had occurred and a plan for drainage appeared necessary. In the cases of women drainage was relatively easy as a posterior colpotomy permitted the draining of a large drain through the vagina. In male patients it was necessary to leave an intra-peritoneal drain. This procedure constituted one of the main objects of the primary technique. It was soon found however that a drain placed in contact with the inverted rectum and drawn out through the lower end of the wound could be enclosed in a peritoneal canal made by bringing the pelvic peritoneum together over the drain.

Early cancer of the rectum is among the most hopeful of all cancers as its location makes possible more thorough removal of the lymphatics than in any other part of the body.

Cancer is inoperable when definite metastases can be detected and the growth is so situated that its complete removal is impossible.

It is generally conceded that early carcinoma of the cervix in which the growth is entirely confined to the uterine tissues must be classed as a purely surgical condition. For some unknown reason radium irradiation in these early cases has been disappointing. Radium appears to give better results in later cases. It has been suggested that when a cancer has been present for some time and secondary infection has occurred a resistance against the cancer is developed which favors the action of radium. Cancer of the cervix is said to be the ideal field for the use of radium.

For cancer of the tongue endothermy is the method of choice. In malignancy of the skin radium needles and the cautery knife have their place. The results are less an index of the relative value of the agent used than of the ability of the surgeon employing it.

ANTHONY F. S. A. M.D.

Martland H. S. Sochocky S. A. von and Hoffman  
H. Stable Colloidal Lead in the Treatment of  
Cancer. *J. Am. M. Ass.* 9:271-273, 1919.

The authors have shown that stable colloidal lead has no selective influence upon cancer cells but is stored in the liver, spleen and marrow. If it re-enters the circulation from the storage depots in the body, plumbism occurs. Thrombosis followed by general necrosis may result but such therapy is dangerous and should not be used empirically by the medical profession in general.

PALL W. SWEET, M.D.

## MISCELLANEOUS

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until I am able to return to Germany.  
My father will take care of me.

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work of art than a work of literature.  
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between the two is that the rap music is  
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M D

The Treatment of Cancer The  
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It is not true that patients and nurses have to perform a few simple tasks in the care of the patient. In the first instance, the results of surgery of the cancerous

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## GENITO-URINARY SURGERY

## Adrenal Kidney and Ureter

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# INTERNATIONAL ABSTRACT OF SURGERY

SEPTEMBER 1927

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### HEAD

Vance B M. Fractures of the Skull. Complications and Causes of Death. A Review of 512 Necropsies and of Sixty One Cases Studied Clinically. *J Ch S* 5: 197-215

The skull must be regarded as an oblong box composed of a vault and base. The vault is a strong curved dome of bone of even thickness with the exception of two fragile plates in each temporal region. The base is an irregularly flattened structure composed of heavy masses of bone weakened by thin plates numerous foramina and bony cavities. The strong and weak points in the base have a systematic arrangement in which the body of the sphenoid is the common center or hub connecting the strong masses of bone by long ridges which form a radiating figure with six spokes. The alternating areas of strength and fragility have an important influence on the course of fracture lines in the skull.

In most instances fractures run from the vault down into the base. In the base the fracture lines generally follow the bed of the fissure between the strong masses of bone that form its boundaries and for the most part are directed toward the central point of the skull. Fractures tend to run also in the direction of the line of violence.

Five hundred and twelve cases of skull fracture which came to autopsy were reviewed by Vance to study the different conditions that cause death following such injuries. In 39 cases death was due to cerebral concussion and occurred as a rule in the first hour following the trauma. Death from exhaustion resulted in fourteen cases the patient did not die immediately but was unable to rally after the primary shock. In twenty seven cases death was due to a terminal lobular pneumonia. One hundred and thirty two patients succumbed to cerebral compression caused by subdural hemorrhage and twenty four to extensive lacerations of the brain. The majority of subdural hemorrhages

were the result of contre coup or direct lacerations of the cerebral cortex. The fatal lacerations of the brain were either surface lesions which covered a wide area of the cerebral cortex or cavities in the brain substance which contained large quantities of blood.

Sixty-one of the patients died of cerebral compression caused by epidural hemorrhage. Most of the hemorrhages were the result of laceration of the middle meningeal artery by the fractured bone. In the cases of cerebral compression the interval between the injury and death varied considerably. Acute suppurative leptomenigitis was responsible for forty one deaths.

The infective agent gained entrance through compound fractures and fractures involving a bony sinus.

The presence of a fracture of the skull was determined from the history of the trauma the general condition the external signs of the injury of the head and the findings of examination of the spinal fluid and roentgen ray examination of the skull.

The pulse and blood pressure readings while important must be interpreted with caution. So many factors influence the circulatory system that neither the pulse nor the blood pressure reacts to intracranial conditions with any degree of consistency. In a typical case of cerebral compression the pulse became slow dropping from a rate of from 70 to 90 a minute to a rate of from 40 to 60 a minute. The blood pressure readings also varied. A blood pressure of 180 systolic and 80 diastolic or one of 230 systolic and 90 diastolic indicated definitely a severe grade of intracranial pressure.

Intracranial tension is indicated also when the spinal fluid is blood stained and flows out under pressure.

Ophthalmoscopic examination of the eyes reveals circulatory disturbances in that region and thereby gave valuable information concerning intracranial pressure. In cases of moderate severity the

## EDITOR'S COMMENT

A NUMBER of interesting and helpful abstracts in this month's issue of the *INTERNATIONAL ABSTRACT OF SURGERY* deserve particular attention. Miller's conservative ideas as to the treatment of puerperal infection (p. 265) emphasize the radical nature of many of the methods that have been suggested in recent years for this condition. In Miller's opinion the employment of operative procedures such as hysterectomy, laparotomy for drainage of a spreading infection and ligation of the pelvic veins is rarely indicated and chemotherapy can best be utilized in the form of repeated transfusions of whole blood combined with equal amounts of Ringer's solution.

Holman and Edwards (p. 288) interesting experimental studies on ligation of the companion vein when ligation of the main artery to a limb becomes necessary not only confirm the clinical observation of Makins and other military surgeons but emphasize the fact that the incidence of gangrene may be lessened if when arterial ligation becomes necessary the companion vein is ligated proximal to the entrance of the veins accompanying the arteries which furnish the main collateral circulation.

Jalowitz report (p. 234) of the results of peripheral nerve suture in ninety six cases from von Eisberg's clinic presents a rather gloomy contrast with the results of nerve suture as seen in other clinics for example in that of Delageniere (*Surg. Gynec. & Obst.* 1924 **xxix** 543) Int. Abst. Surg. 1925 **xl** 237) or with the remote results of operation for peripheral nerve injuries as reported to the *International Association of Surgeons* by Platt and Bristow (*Brit. J. Surg.* 1924 **vi** 535) Int. Abst. Surg. 1924 **xxviii** 517). Jalowitz states that the motor fibers recover more easily and rapidly and that the prognosis of operation performed after the ninth month is absolutely unfavorable are in direct variance with the ideas expressed by the majority of workers in this field.

Spurling and Whitaker's experimental study of the end results of cholecystostomy as shown by the cholecystogram (p. 254) is an interesting

contribution to the literature both of gall bladder surgery and of gall bladder visualization. Were it not for the necessity of providing adequate drainage for a damaged liver in severe cases of disease of the bile passages the author's conclusion that drainage of a diseased gall bladder with the expectation that it will regain its normal function is not only futile but endangers the patient's health would furnish a ready answer to what is frequently a disturbing question.

Balfour and Henderson's interesting report of fifty-eight cases of benign tumor of the stomach (p. 47) suggests the importance of considering the possibility of such growths in the differential diagnosis of cases of uncomplicated anemia and of making careful fluoroscopic examinations of the stomach to rule out their presence. In more than 90 per cent of the cases reported which have been submitted to X-ray examination the lesion was demonstrated and in nearly one half the condition was diagnosed as a benign tumor.

MacCarty's paper on the relation of chronic ulcer and carcinoma of the stomach (p. 43) emphasizes the fact which he has stressed repeatedly in other papers that gastric ulcer and gastric carcinoma are frequently associated and that their clinical differentiation is not always possible. As MacCarty pointedly remarks until it is possible experimentally to produce chronic gastric ulcers and gastric cancer cannot affirm that cancer does or does not develop at the site of an ulcer and this question after all of scientific rather than practical interest.

McCarrison's account (p. 227) of the experimental production of goiter by the administration of a diet characterized particularly by a lack of Vitamin B. Masson and Simon's report of a case of multiple perforated gastric ulcers (p. 245) H. J. D. Hillman and Klemperer's helpful discussion on the pathogenesis of jaundice (p. 252) Gordon and Cantarow's clinical study on the use of parathyroid extract in the control of hemorrhage (p. 290) and Francis' comprehensive review of the subject of tularemia infections (p. 327) are a few of the many important papers abstracted in this month's issue.

found to be especially valuable in the following conditions

1 Demonstrable intra-ocular damage with no foreign body found in or about the eye

2 Old injuries without a recognizable wound of entry

3 Extensive intra-ocular disturbances in which the ophthalmoscopic examination is of very little value

4 Cases of non magnetic foreign bodies such as copper or rock in which it is very essential to know whether there are intra-ocular particles as the indications for enucleation or conservative treatment may depend on this information

5 Cases of multiple foreign bodies blown into or about the eye The treatment usually depends upon whether intra-ocular particles are present in one or both eyes

6 Injuries in which the determination of the exact size, location and shape of the foreign bodies furnishes the necessary indication for the route of extraction of magnetic foreign bodies or suggests the possibility of exit action of non magnetic bodies by forceps

7 Case in which the foreign bodies change position either unassisted or after the application of a magnet

8 Cases in which there is doubt as to the nature of the foreign body which has entered the eye

9 Case with multiple foreign bodies of a magnetic nature

10 Cases of extraordinarily large foreign bodies in which information relative to the size and shape may indicate the best route for extraction

One or two illustrative cases of each group are cited and 46 of the 100 cases examined for foreign bodies are tabulated. A review of their work has led the authors to conclude that exact localization of foreign bodies is not only desirable but so necessary that the intelligent management of most injuries of this type that the procedure cannot safely be omitted in a foreign body injury to the eye.

ALVIN HARTLEY, M.D.

W. D. J. A. C. of Sympathetic Ophthalmitis  
B. J. Ophth. 9

Wood reports the case of a 9 year old girl who contra lateral bilateral gonorrheal conjunctivitis. The right eye developed a corneal ulcer which went on very rapidly to perforation. Two weeks elapsed before the eye was quiet enough for operative work. A conjunctival flap was then fashioned to cover the perforation.

About two weeks later while the left eye appeared normal on ordinary examination the slit lamp revealed many fine precipitates on the corneal cell in the aqueous and a dewy endothelium. The eye was then enucleated. With the patient still under anesthesia 100 cc. of blood were removed for an autogenous serum and a dose of salvarsan was given. The use of atropine and opium was begun at once and continued throughout the treatment. The serum

was given in 3-cc. doses for six injections but was then discontinued as it became slightly septic. Salvarsan was given weekly and sodium salicylate administered in large doses.

Under this treatment the haziness of the vitreous cleared and the precipitates became smaller so that after about three and a half months the vision was 6/5.

The most important factors in this case were the early diagnosis with the slit lamp and the immediate removal of the exciting eye. On examination of the excised eye every part was found altered but the changes were most marked in the anterior portion.

GEORGE R. McCLIFF, M.D.

Mayer, L. L. Visual Results with Telescopic Spectacles. *Am. J. Ophth.* 1917, 3: 256

Mayer tested telescopic spectacles in a series of sixty-five cases for one or more of the following indications:

1 To improve the vision in cases of poor vision with ordinary lenses especially inability to read fine print

2 To tide the patient over until some operative measure could be possible

3 To improve the vision of elderly or unhealthy persons when an operative procedure would be associated with considerable risk

4 To demonstrate to the patient that poor vision can at any time be improved

He briefly reports ten cases illustrating the following conditions: cataract, retinal lesions, optic atrophy, myopia and choroidal atrophy, scars of the cornea, physical anomalies and glaucoma.

Patients are eager to try the telescopic spectacles but often complain on wearing them. The patient sees best with the distals in terms of his ordinary refraction. Perseverance of the patient usually gives perfect results. The real gain attachment must not focus the print closer than 8 in. Practice and persistence always result in greater vision and flexibility of use. When the price of the lenses is of second consideration the author writes a prescription after the final trial. In other cases the lenses are loaned temporarily for trial.

LESLIE L. MCCOY, M.D.

Jackson, E. Advantages of Plano Trial Lenses  
*A. J. Ophth.* 1917, 3: 66

The author summarizes the advantages of plano trial lenses as follows:

1 With plano trial lenses it is possible to obtain results closely approximating the best results obtainable with lens surfaces especially calculated to reduce aberrations to the minimum.

2 It is easy by means of them to determine the vertex refraction.

3 It is easy to measure the exact distance of the lens surface in front of the eye.

4 It is easy to keep down close to the minimum spherical aberration and distortion of pencils by obliquity.

vessels of the disk were engorged the disk appeared hazy or definite papilloedema was found. In several instances the ophthalmoscopic examination showed that the eyegrounds were affected more on one side than on the other. As a rule the cause of the increase in pressure was located on the side of the more involved eyeground.

Neurological examination includes a routine determination of the following points: (1) the condition of the pupils and the oculomotor system (2) the condition of the facial and tongue muscles (3) superficial reflexes of the trunk (4) deep reflexes of the extremities (5) abnormal neurological reactions such as patellar and ankle clonus Babinski and Kernig signs stiff neck etc (6) abnormal conditions of muscular groups such as weakness spastic and flaccid paralysis and convulsive seizures.

In the thirty-four patients operated upon three indications for operation were discovered: (1) compound or depressed fractures of the skull (three patients died and seven recovered) (2) definite intracranial tension especially when the lesion causing the trouble could be definitely localized by neurological examination (twenty patients died and three recovered) and (3) a disabling paralysis on one side (one case with recovery).

MORRIS H. KENNEDY, M.D.

**M. Kenzie D. Further Observations on Spreading Osteomyelitis of the Skull.** *J. Laryngol. & Otol.* 1927, xli, 293.

Spreading osteomyelitis of the skull is rare. Osteomyelitis may follow any operation on a suppurating nasal sinus. While extensive operative trauma exposes a large area of bone to infection a minor interference is more likely to leave behind it active suppurating foci in contact with the wound. Osteomyelitis may follow such simple and restricted procedures as the intranasal antrum operation, the intranasal frontal sinus operation and curettage of an ethmoid for polyps. If the reports represent the usual run of cases, the disease is more frequent after small than after large interventions.

The exciting cause of the disease is still unknown. A patient may safely undergo several sinus operations without unfavorable sequelae and then for some undiscoverable reason develop osteomyelitis following an intervention that is quite trifling.

The spontaneous form of osteomyelitis is more frequently self-limiting than the postoperative form.

In progressive osteomyelitis appearing after an operation an interval of a week or two usually elapses between the operation and the onset of the disease. In such cases the progress of the condition is slow.

When the disease originates in the bones of the face the thin flat facial bones tend to become necroted more readily than the thicker bones of the condition here being in marked contrast to the creeping or halting and leap progress of the cranial vault. It appears also that the route taken by the infection in the bones of the face is toward

the frontal bone and the vault of the skull. For some unknown reason the disease advances more rapidly in the roof of the nose and orbit at least in its early stages. If this were not the case it would soon begin and end with septic meningitis.

Drainage alone is insufficient to arrest the disease. The surgeon must treat it as a malignant infection, erect his defenses and cut his barriers well as far as its apparent limits. This requires the making of long incisions in the face and the removal of bone sometimes over extensive areas which is a difficult necessity as features may thereby be obliterated and conspicuous scars result.

When osteomyelitis begins in either ethmoid seems to reach the nasal bones quickly, the sign being the appearance of a pale swelling of the soft parts at the inner side of the orbit and over the bridge of the nose. At the same time in the interior of the nose will show the mucosa of the ethmoid region to be red and greatly swollen.

When the disease has its origin in the true starting point seems to be most common in the orbital floor and the inferior margin of the orbit.

When the condition begins in the frontal bone the swelling first appears over the affected sinus but occasionally the earliest swelling at the trouble is the rise of a doughy swelling at the near the frontal eminence.

Forming resorptions have followed the intracranial use of colloidal silver. In three of the author's cases in which this treatment was tried there is in unmistakable improvement in the symptoms.

M. Kenzie reviews in detail the surgical procedure in the spreading forms of osteomyelitis of the skull and gives an account of the operation. He states that in all cases the only method of effecting a cure is the operation.

## EYE

**Mills H. P. and Watkins W. W. Localization of Foreign Bodies in or about the Eye.** *Ed. 1927* 97, 336.

Since the perfection of the latest methods ophthalmologists have been placed in a position of decided advantage in the treatment of foreign body injuries of the eye. The ability to determine definitely the location of a foreign body in the shape and within limit its nature permits proper treatment of a high injury and a high conservation of the vision of many eyes which in other wise have been lost.

Brief mention is made of the history and development of localization technique and of the list of the relative frequency of foreign bodies in the eye upon the necessity for surgical treatment in the technique and method of certain undesirable sources of error. Localization by Sweet's apparatus has been found to be the best method.

Urut  
In good use it was examined by the author for suspected foreign bodies soon after the

accurate as and even more delicate than the Wassermann reaction. The reaction is negative in deep keratitis other than interstitial and in cases in which it is positive it tends to become negative under antisyphilitic treatment.

THOMAS D. ALLEN, M.D.

Bedell A. J. The No. 1000 Camera. *Am. J. Ophth.* 19 2 55 359

Bedell believes that the No. 1000 camera satisfies the demand of the ophthalmologist for an instrument to be used in the office as it is compact and the illumination easily controlled. The article contains three figures explaining the instrument and two illustrations of fundus conditions revealed by it.

THOMAS D. ALLEN, M.D.

Cohen M. and Meeker L. H. A Case of Multiple Cyst of the Optic Nerve Meninges. *Arch. Ophth.* 9 7 17 212

The authors believe that in the case reported in this article they identified the arachnoid microscopically. As their photographs and histological descriptions so closely resemble previously described primary lymphangiomata of the orbit they are inclined to think that such cases have been incorrectly diagnosed. They cite a number of ophthalmologists who claim that no lymphatic vessels have been demonstrated in the orbit. They contend that the term meningocele should be reserved for cases in which hernia of the arachnoid is proved.

THOMAS D. ALLEN, M.D.

Scarlett H. W. D. Uses Apert from the Nervehead. *Am. J. Ophth.* 19 7 3 43

Scarlett reports a case of druses (hyaline bodies) in a 3 year-old boy with normal vision. It is unusual to find druses in clumps not in contact with the disk as in this case. The cluster was situated between the disk and macula and extended into the vitreous to the extent of about 3 diopters. Druses arise from the lamina vitrea and are harmless.

The author cites a number of typical cases.

WILLIAM CORRIE, M.D.

Reese A. B. Abscesses of the Optic Nerve. *Arch. Ophth.* 19 1 6

The author presents the histories and pathology of 17 cases of abscesses of the optic nerve. The abscesses are caused by the emboli of the optic nerve from the vitreous through the perivascular lymph spaces or from the choroid through the border tissue of the retina and that emboli may also enter the nerve. The latter occurs infrequently because the small vessels supplying the nerve come off at right angles from the central artery. Emboli are therefore apt to be carried in the current of the arterial stream and only very occasionally enter the finer twigs in the nerve.

THOMAS D. ALLEN, M.D.

## EAR

Fowler E. P. The Newer Tests for Hearing with Demonstration of Methods. *Laryng. & Rhinol.* 1927 xxxvi 8

The author thinks there is some confusion regarding the execution and interpretation of the new tests for hearing due largely to the unfamiliar technical terms. He emphasizes that the older tests should not be abandoned as some of the newer tests offer refinements requiring progressive research. The new charts and audiometers are discussed in some detail.

JAMES C. BAZZELL, M.D.

## NOSE AND SINUSES

Morse J. L. Acute Infections of the Nasopharynx and Its Adnexa in Infancy and Early Childhood. *Mod. Med. Clin.* 19 11 143

Acute infections of the nasopharynx and its adnexa occur often in childhood and are frequently the cause of death. The treatment is primarily preventive consisting in the removal of adenoid regulation of the patient's habits to diminish the vulnerability of the mucous membrane of the nose and nasopharynx, the prevention of exposure to contagion, isolation of the patient and his confinement to bed for two or three days and simple local treatment usually with the silver salts. If these measures are taken babies and children will seldom have a uterine nasopharyngitis and therefore will seldom develop complications.

The complications are ethmoiditis, inflammation of the frontal and maxillary sinuses (rare), otitis media (frequent), mastoiditis following otitis media, thrombosis of the lateral sinus following mastoiditis and meningitis. Proper treatment of these complications will reduce their severity.

WILLIAM R. WALTZ, M.D.

Bennett J. F. The Relation of Infected Nasal Sinuses to Optic and Orbital Disease. *J. J. Otol.* 19 2 1 92 10, 4

Most diseases of the eye secondary to sinus disease are of an inflammatory nature and caused by the transference of infection from the sinus to the orbit. This takes place through (1) a perforation of the intervening tissue such as results from infection necrosis and the final breakdown of the wall (2) a dehiscence in the intervening osseous wall (3) venous channels or (4) the lymphatics.

The most frequent route is probably by way of the veins. In cases of sinus disease accompanied by blindness operation will often clear up the blindness.

WILLIAM R. WALTZ, M.D.

## MOUTH

Woolsey J. H. Congenital Cleft Lip and Palate. *C. for S. & H. J.* 1927 xxv 633

In the United States congenital cleft lip and palate occur once in every 1000 births. The author

5 It is easy to measure by neutralization the strength of lenses of different forms

6 Plano lenses should be universally employed as trial lenses

LESLIE L. MCCOY M.D.

Lea J. A. The Treatment of Trachoma by Acetic Acid *F. J. Ophth.* 1921 21 150

In the treatment of trachoma Lea washes the eye and eyelids with a saturated solution of boracic acid and then drops in a 0.5 per cent solution of cocaine (Dierker's solution which contains a renal n also). Next he takes an instrument made for him by Weiss (an ordinary tattooing needle will do) dips it into a mixture of equal parts of acetic acid and water, takes care to fill the groove and insert in the eyelid pricks every true granulation and any wavy rolls or fringes of conjunctiva and then washes the eye with a solution of boracic acid and applies a cold compress to the eyelids for an hour or so.

This is repeated two or three times a week. When the true granulations have disappeared he applies alternately to the hypertrophied papillae sulphate of copper and a 2 per cent solution of nitrate of silver.

LESLIE L. MCCOY M.D.

Lige T. W. L. M. A Case of Emphysema of the Conjunctiva *B. J. Ophth.* 1923 233

The author reports the case of a workman who in blowing the dust from his clothes with an air hose under a pressure of 60 pounds received the full force of the air in the face and eyes. On examination the conjunctiva was found raised in several large and small bullae similar in appearance to a chemois. Otherwise the eye was negative. Within five or six days no trace of the injury was apparent and the patient was allowed to return to work.

GROVER R. McALISTER M.D.

Shallow T. A. Pulsating Exophthalmos I *S. G. Ophth.* 1921 27 32

Shallow reports a case of bilateral exophthalmos following an injury of the head sustained in November 1924. Six weeks later the left eye turned upward and became prominent. Subsequently there was protrusion of the right eye. Vision in the left eye was impaired but in August 1925 the protrusion was less marked. The previous day the patient had noticed humming in the head and a peculiar noise in his left ear. Examination in December 1925 revealed bilateral exophthalmos, a redundant and chemotic conjunctiva and a continuous bruit which was very well defined over the right frontal sinus and less marked over the left.

Among the unusual features of this case was the fact that although the injury occurred in November 1924 the bruit was not noticed until May 1925. There was a bilateral exophthalmos presumed to have been caused by a fistula on the medial side of the internal carotid artery. The lesion was believed to be between the right internal carotid artery and

the cavernous sinus. In January 1926 the left common carotid was ligated. The bruit then ceased and the eyes receded. A month later a bruit recurred. When the patient was examined eight months later the bruit was so small the right was proposed a continuous bruit could be heard over the right eye and frontal sinus. There was a definite pulsation in the right internal carotid but not in the right external carotid. Because the circulation in the right internal carotid could be cut off by compression of the left common carotid ligation of the left common carotid was done. The patient died 2 days later.

X-ray examination following the ligation of the bismuth after death showed a rupture in the left common carotid and the aneurysm was on the right and in the right common carotid artery. The right half of the brain was perforated throughout the course of the right internal carotid and its branches.

The author concludes that the rupture occurred in such cases is ligation of the common carotid on the side of the lesion. When the occlusion fails the failure is due to reversal of the current in the aneurysm sac and along the course of the internal carotid artery. The blood is from the opposite side. Any further surgery be limited to ligation of the upper carotid vein. Ligation of the opposite common carotid is not justifiable.

ALLEN WILSON M.D.

Meslin M. E. Central Chloroiditis Due to Toxemia of Pregnancy *Am. J. Ophth.* 1923 3 33

The author reports an unusual case of central chloroiditis in the third month of pregnancy without intraocular pressure or albuminuria but with a fresh area at the right macula which increased greatly extending from the macula to the back of the retina of the pregnant eye and the other eye turned.

The left retina which had been fairly clear but was quite covered by the right months later the eyelids showed a central and peripheral choroiditis but vision was good. The author quotes Zeiss's rule as the best guide in these cases.

ALLEN WILSON M.D.

Hirschel D. K. The Organism in Interstitial Keratitis *J. A. Ophth.* 1921 41 42

The problem of finding a kin to syphilis in the interstitial keratitis is a problem which has not yet been solved. The author has examined many cases of interstitial keratitis which have been treated with mercury and have found that in many cases of interstitial keratitis which have been treated with mercury the organism is not found. The author has found that in many cases of interstitial keratitis the organism is not found. The author has found that in many cases of interstitial keratitis the organism is not found.

The author has found that in many cases of interstitial keratitis the organism is not found. The author has found that in many cases of interstitial keratitis the organism is not found. The author has found that in many cases of interstitial keratitis the organism is not found.



The theory that when rheumatic heart disease appears after tonsillectomy the tonsillectomy failed to prevent it is erroneous. Rheumatic heart disease may not manifest itself until three or four years after an attack of tonsillitis or rheumatic fever. Moreover the mere fact that tonsillectomy was eventually performed indicated the necessity for it and the delay of the operation may have made the cardiac damage possible. On the other hand even a late tonsillectomy will often prevent subsequent attacks and damage to the heart.

The prompt subsidence of fever and joint symptoms following tonsillectomy in cases of acute rheumatic fever has led to the more frequent performance of the operation as soon as sufficient pain has proved the tonsils to be the port of entry of the infection. As operation during the height of the febrile attack has not proved disastrous it diminishes the possibilities of cardiac involvement.

JAMES C. BRADWELL, M.D.

**Bloodgood J. C.** Oral Lesions Due to Vincent's Angina. What Every Physician and Dentist Should Know About Its Recognition and Treatment. *Journal of the American Dental Association*, 1927, 14, 4.

Bloodgood is of the opinion that the occurrence of Vincent's angina is increasing and that the increase is due to associated with poor living conditions.

In the treatment he has had excellent results from the use of sodium perborate. A thick paste of the hemically pure salt is made with water and applied to all of the teeth with the finger. Any red or ulcerated areas not around the teeth are treated in the same way. The patient holds this paste in his mouth for about five minutes. During this time it foams as a result of oxidation. The mouth is then rinsed with warm water.

In the utter pronunciation it is a mistake to allow patient to do this themselves until they are thoroughly trained. The cure is usually cured. If the treatment is given frequently it causes irritation. When the condition is of the entire oral cavity extending to the face and pharynx the patient should gargle with a thin solution of the perborate two or three times a day. The more extensive the lesion and the more ulcerated the case the longer the time required for a cure. J. M. C. BRADWELL, M.D.

## NECK

**McCarrison R.** The Experimental Production of a New Type of Goiter Unrelated to Its Origin to Iodine. *Lancet*, 1919, 196.

McCarrison has hitherto produced three types of goiter in animals—the hypertrophic type, the hyperplastic type, and the colloid type. The hypertrophic type arises in animals living under unhygienic conditions of life in some poor localities and in animals receiving massive doses of iodine in the food. The hyperplastic type arises

in animals receiving an excess of fats or fatty acids in an otherwise well balanced diet. The colloid type arises in animals receiving an excessive amount of lime in an otherwise well balanced diet.

These types of goiter with the possible exception of those due to the ingestion of faecal bacteria may be prevented by increasing the intake of iodine in proportion to the unhygienic conditions of life or to the excess of fats or of lime in the food.

This article deals with the experimental production of a new type of goiter which is unrelated to the iodine ingested. Its histological features are those of an intense secretory hypertrophy which ultimately leads to exhaustion of more or less of the epithelium and its replacement by non-secretory elements and fibrous tissue. The picture approaches that seen in Graves' disease during the secretory hypertrophy and myxœdema when the secretory epithelium have been replaced by fibrous elements.

It is prone to arise when green vegetable foods and fruit are excluded from a diet containing more than 60 per cent of white flour, less than 20 per cent of protein and fats and salts (including iodine) in adequate amounts. Such a diet is poor in vitamins, manganese, vegetable juices and roughage and is rich in vitamin poor carbohydrate. Experiments have shown that absence of the growth promoting factor of vitamin B<sub>1</sub> the chief deficiency in the diet. However, McCarrison is unwilling to attribute the condition to absence of this factor alone. It is noteworthy that white flour is poor in the growth promoting factor of vitamin B<sub>1</sub> whereas it is not devoid of the anti-neuritic factor.

The experimental work here reported suggests the occurrence of this type of goiter in children and young women of the working classes whose food contains much carbohydrate, poor in vitamin, little suitable protein and less green vegetables and fruit. The subjects of its progressive stages are prone to develop Graves' disease following such influences as fright, mental worry, pregnancy, lactation and attacks of acute infectious diseases and the subjects of its retrogressive stages show greater or lesser degrees of myxœdema. If the author's findings as to the etiology are correct the condition can be prevented or cured only by a well balanced diet rich in vitamins and will not be influenced by iodine.

MANCEL E. LICHTENSTEIN, M.D.

**Starr P.** The Course of Hyperthyroidism Under Iodine Medication. *Archives of Internal Medicine*, 1927, 133, 5.

The typical course as represented by the basal metabolic rate in all types of hyperthyroidism when daily large doses of iodine are given in any form consists in a primary remission, a more gradual recurrence and a post iodine reaction after discontinuance of the iodine treatment.

Of thirty-six unselected clinic cases representing various types of hyperthyroidism, eight (about one-fourth) showed a reduction in the metabolic rate of less than 25 per cent and twenty-eight (about three

rejects the term *hazelp* and gives the following classification for the various types of cases

Group 1. The alveolar process cleft (lip cleft process normal) (a) unilateral right and left complete and incomplete (b) median (rare) complete and incomplete (3) bilateral right and left complete and incomplete

Group 2. Post-alveolar process cleft (palate cleft process normal) (a) soft palate extent in thirds (b) hard palate extent in thirds

Group 3. Alveolar process cleft (follows incisor sutures) (a) unilateral process right and left complete and incomplete (b) unilateral process right and left complete and incomplete (c) bilateral process right and left complete and incomplete (d) median (rare) complete and incomplete (e) bilateral process right and left complete and incomplete (f) bilateral process right and left complete and incomplete (g) bilateral process right and left complete and incomplete (h) bilateral process right and left complete and incomplete (i) bilateral process right and left complete and incomplete (j) bilateral process right and left complete and incomplete (k) bilateral process right and left complete and incomplete (l) bilateral process right and left complete and incomplete (m) bilateral process right and left complete and incomplete (n) bilateral process right and left complete and incomplete (o) bilateral process right and left complete and incomplete (p) bilateral process right and left complete and incomplete (q) bilateral process right and left complete and incomplete (r) bilateral process right and left complete and incomplete (s) bilateral process right and left complete and incomplete (t) bilateral process right and left complete and incomplete (u) bilateral process right and left complete and incomplete (v) bilateral process right and left complete and incomplete (w) bilateral process right and left complete and incomplete (x) bilateral process right and left complete and incomplete (y) bilateral process right and left complete and incomplete (z) bilateral process right and left complete and incomplete

It is thought that infants withstand surgical shock well. Therefore the major portion of the treatment should be carried out before the age of 3 months. Digital pressure should be made on the alveolar processes during the first two weeks of life and then permanent closure should be effected. The soft palate should have been treated by the eighteenth month.

Closure of the lip first is advocated by Betty Blair Brown Thompson Ritchie Horsey Gordon and Ne. Closure of the palate first is favored by Brophy Lane Sherman Farr and Terry.

The premaxilla should never be amputated. Its union with the lateral process is should be bony union.

Speech training is a very important part of the treatment. All patient with any defect should have a competent instructor.

BURRITT B. W. M.D.

## PHARYNX

M. Sher H. P. An X-Ray Study of Movements of the Tongue Epiglottis and Hyoid Bone in Swallowing. Followed by a Discussion of Difficulties in Swallowing Caused by Retropharyngeal Diverticulum Postcricoid Webs and Erosion of Cervical Vertebrae. L. S. P. 19.

X-ray studies of the movement of the tongue during swallowing which were made with the use of barium milk showed that first the tip depresses if then the dorsum is depressed. After the tip is carried to the roof of the mouth against the teeth and held there, the tip comes up the base depresses. The base then depresses more and the anterior half goes to the roof. At this point the base of the tongue is shot back and like a plunger hoots the bolus downward. The base then moves upward and backward until the tongue is fully lost behind the arch of the jaw and finally strikes the posterior pharyngeal wall.

As the tongue moves up and backward the epiglottis comes to lie against the tongue and its tip is forced against the posterior pharyngeal wall with the tongue. The epiglottis acts as a watershed dividing the stream in two. In continuous swallowing the barium not only runs down on either side but cascades over the epiglottis in a full stream. Both the fluoroscope and the roentgenogram show that the epiglottis turns downward to cover the larynx. Even when the epiglottis is deformed the mechanical closure of the larynx is complete.

The hyoid bone follows the movement of the tongue upward the width of one cervical vertebra below it is attached to its base. The great horns of the hyoid are forced back against the posterior pharyngeal wall and remain stationary. The lateral movement being in the body of the bone. This partial fixation of the hyoid results in a quick return of the epiglottis after the act of swallowing.

Retropharyngeal pouches in man are probably due to (1) an embryological tendency toward the formation of such pouches and (2) an asymmetry of the mouth of the esophagus. Act as a soft fountain in asymmetry of the hyoid cartilage and brings undue pressure upon an embryological and anatomically weak spot of the esophagus.

Bilateral webs of the esophagus are probably congenital. Other webs especially if small and behind the cricoid cartilage or just below it are due to disease of the esophageal mucosa. They are found most frequently on the right side. They sometimes are difficult to swallow or the occurrence of strangling when swallowing is attempted. A large examining tube and the X-ray are enough for the diagnosis.

Treatment is most satisfactory if the webs are punched out or pulsed.

Exostoses of the cervical vertebra may cause difficulty in swallowing. The diagnosis is made by X-ray examination. There is no treatment of pharyngoscopy unless the condition is definitely indicated. J. Ford R. W. M.D. 19.

Robey W. H. and Freedman L. M. The Effects of Tonsillectomy on the Acute Attack of Rheumatism. J. Am. Med. Ass. 1927, 9, 7, 3.

Robey and Freedman are of the opinion that complete removal of the tonsils is the best preventive of rheumatic fever and therefore of rheumatic heart disease. A history of repeated acute throat infections of importance than tonsils which suggest disease by their appearance. In the history of repeated acute tonsillitis appear normal. When the tonsils are diseased they should be removed even in the absence of a history of sore throat.

Tonsillectomy is a major operation and should be reserved for the person who has had a history of an acute attack of rheumatism in association with tonsillitis. The patient is a dangerous one to a tonsillectomy are often at danger of the entire treatment.

**Harris T J** Is Radium a Cure for Cancer of the Larynx? An Inquiry Based on a Study of the End Results *Arch Otol* 38:197-30

In 1921 in considering the use of radium in the treatment of carcinoma of the larynx Harris raised two questions for consideration (1) whether the claim that radium cures carcinoma of the larynx is borne out by statistics and (2) whether there is danger of serious after effects following its use.

At that time he was able to collect only eleven cases in which a cure had been claimed. Five years had elapsed in only three of these.

Because of the very small number of reported cures in the large number of cases treated with radium Harris was of the opinion that there was not sufficient evidence to warrant the substitution of radium when operation was indicated.

Six years have elapsed since that time. Harris has now collected the reports of sixty cases treated

with radium in which only two cures of five years duration were obtained. The only encouraging report was made by MacKenty who obtained twenty three cures in thirty three cases treated by laryngectomy from three to five years previously. Harris therefore believes that radium will not cure carcinoma of the larynx.

The after-effects of treatment with radium have not been satisfactory. In some cases the condition has progressed more rapidly because of the stimulating action of insufficient dosage whereas in others severe and extensive burns have resulted from the destructive action of excessive dosage. In many cases patients receiving a dosage sufficient to destroy the growth develop an intense toxæmia which is difficult to control. Harris therefore concludes that radium is harmful in the treatment of carcinoma of the larynx.

MANUEL E. LICHTENSTEIN, M.D.

fourths) a reduction of 50 per cent or more. In thirteen the rate was reduced to +20 per cent or less.

The same frequency and degree of remission occurred in a series of twenty cases of toxic goiter including adenomatous goiter with hyperthyroidism. The author tabulates eight such remissions in adenomatous goiter. The cases showing less than a 5 per cent iodine remission have no distinguishing clinical or pathological feature.

Recurrence under iodine treatment is illustrated. Several examples of postoperative reaction including a thyrotoxic crisis of this nature are cited. The control of the crisis by enormous doses of Lugol's solution is illustrated. The comment is made that since adenomatous goiter with hyperthyroidism seems to react to iodine with the same frequency and degree of remission as exophthalmic goiter the pathogenesis of the two conditions is probably similar.

In conclusion the author states that as the uniform course of hyperthyroidism under iodine medication with the dosage indicated is eventually characterized by recurrence and a postoperative reaction the prolonged treatment of this disease in this way is without final benefit.

Blalock, A. and Harrison, T. R. The Effects of Thyroidectomy and Thyroid Feeding on the Cardiac Output. Study No. 4 on the Regulation of Circulation. *S. G. G. v. C. - Ob. 1* 927 41 617.

In experiments on dogs the cardiac output was found to be increased by the feeding of thyroid and decreased by thyroidectomy. The change in cardiac output was usually somewhat greater than the change in the metabolic rate. The administration of iodine to animals receiving thyroid substance was followed by a marked decrease in the cardiac output as well as in the metabolic rate. This decrease was observed for from six to ten days the cardiac output and metabolic rate then increased. After the cessation of thyroid feeding both the metabolic rate and the cardiac output remained elevated for two months or longer. The former returned to normal before the latter.

Digitalis increased the output of the heart of dogs with hyperthyroidism but this effect was somewhat less than the effect on the cardiac output of normal dogs. The authors suggest that the oxygen and carbon dioxide pressures may be important factors in regulating the cardiac output. They conclude that digitalis should be given to patients with hyperthyroidism whether cardiac insufficiency is present or not.

Leo M. Zinner, M.D.

Imparator, C. J. Laryngeal Varices. *M. J. & A.* 97 3 38.

Imparator reports fourteen cases of laryngeal varices which were removed by suctions or direct laryngoscopy. These tumors are identical in histological structure with hemorrhoids. They occur

usually on the lower surface of the cord and rarely on both cords. They range in size up to 3 mm in diameter. Their color depends entirely on the blood vessel they contain and ranges from white to dark blue. In the literature these tumors are variously termed filiform angiobroma, cedematous angiomatous polyp, varix, and angoma. The principal symptom is usually hoarseness and rarely cough or expectoration.

In the etiology, voice trauma is evidently the most important factor. Nine of twelve patients were heavy smokers. Eight had chronic pharyngitis and chronic tonsillitis. One patient who had no voice trauma was a worker in a dye establishment where he was exposed to irritating fumes. In the author's opinion the voice trauma induces lymph stasis in the mucosa and the varix develops as the result of consequent venous stasis. Vocal rest should be insisted upon for ten days following the operation and on discharge the patient should be admonished to use his voice properly.

F. S. Moore, M.D.

Thomson, Sir StC. and Trail, R. R. Tuberculosis of the Larynx and Artificial Pneumothorax. *Lancet* 927 CCX 903.

The prognosis of pulmonary tuberculosis is always rendered more grave by secondary involvement of the larynx. Local treatment for the laryngeal infection consists in resting the voice and the use of the galvanocautery. Both of these methods are applicable to only a small number of cases and require many months to effect a cure.

Reports of the effect of artificial pneumothorax on laryngeal tuberculosis are few because cases with throat involvement are rarely suitable for this treatment. In cases in which it has been used its effect was favorable. The presence of a laryngeal lesion has not been considered a contra-indication to pneumothorax.

The authors report nine cases of combined laryngeal and pulmonary tuberculosis treated by artificial pneumothorax. Complete healing resulted in six. Involvement of the larynx arising after the patient's admission to a sanatorium is considered to be of grave import as it indicates progression of the disease in spite of the most favorable conditions. However, in three of the reported cured cases the infection of the larynx developed under such circumstances. In one case the lesion failed to respond to pneumothorax alone but quickly healed when a few local treatments were given in addition. In two cases tuberculosis of the larynx developed after the induction of artificial pneumothorax but in both the condition was mild. In one it responded quickly to rest of the voice. One patient succumbed to progressive tuberculosis with involvement of the larynx two months after artificial pneumothorax.

The larynx may be cured by collapsing a lung when the bacilli persist in the sputum and tuberculosis is detectable in the chest. In such cases however its recurrence is possible.

Leo M. Zinner, M.D.

the type. In cases of medullo epithelioma the life expectancy is eight months while in those of spongioblastoma it is twelve months in those of medulloblastoma seventeen months and in those of astrocytoma seventy two months.

The spongionata are highly malignant grow rapidly and quickly cause death. Less than 1 per cent occur in childhood. The medulloblastoma are essentially tumors of childhood occur in the mid-cerebellum grow rapidly and tend to recur following their removal. As they arise from the roof of the fourth ventricle their removal is very difficult.

The astrocytomata have a much better prognosis. They also arise usually from the roof of the fourth ventricle but are slow growing and more easily removed.

Although unnecessary operations such as appendectomy are still being performed for the relief of symptoms due to brain tumors fewer advanced cases of brain tumor are seen by the neurological surgeon today than in former years. It is evident therefore that progress is being made in early diagnosis.

Eighteen cases representing the following conditions are discussed in detail.

Case 1. Encapsulated tumor of obscure type weighing 273.5 gm. The patient was a girl 4 years old. The tumor was successfully removed.

Case 2. Adhesive meningitis with cerebellar symptoms and hydrocephalus. An acute flare up proved fatal. The patient was a girl of 2 years.

Case 3. A large median cerebellar medulloblastoma. The patient was a girl of 9 years. The tumor was successfully removed.

Case 4. Suprasellar rathistoma. The patient was a woman 30 years of age. Death followed a transfrontal operation for drainage of the cyst.

Case 5. Mid cerebellar fibrillary astrocytoma. The patient was a boy of 13 years. Removal of the tumor was followed by improvement but there was residual cranial nerve involvement.

Case 6. Mid cerebellar medulloblastoma. The patient was a boy of 8 years. The tumor was removed successfully.

Case 7. Inoperable mid-cerebellar tumor (peritheloma). The patient was a girl of 8 years. The symptoms were relieved by a palliative decompression.

Case 8. Cerebellar tuberculoma on the left side. The patient was a boy of 5 years. A palliative decompression relieved all symptoms.

Case 9. A long intraspinal glioma extending from the foramen magnum to the level of the second thoracic vertebra. The patient was a girl of 8 years. Removal of the tumor by suction was followed by relief of the symptoms which were those of a lesion of the cervical cord.

Case 10. Spinal metastases from a malignant mid-cerebellar medulloblastoma removed a year previously. The patient was a boy of 12 years. The

symptoms were temporarily relieved by deep X-ray therapy.

Case 11. Cerebellar tuberculoma. The patient was a boy of 14 years. Decompression without removal of the tumor relieved all symptoms except blindness.

Case 12. Cystic fibrillary astrocytoma. The patient is now a man of 29 years. During the past twenty years six operations have been performed for the removal of the tumor and its recurrences.

Case 13. Fibrillary cystic astrocytoma of the cerebellum. The patient was a girl 9 years of age. After removal of the tumor all symptoms except blindness were relieved.

Case 14. Cerebellar astrocytoma. The patient was a girl of 3 years. Removal of the tumor was followed by recovery except for near blindness.

Case 15. Cystic mid-cerebellar tumor. The patient was a girl of 7 years. Three years after the removal of the tumor the patient was still in perfect physical condition.

Case 16. Mid-cerebellar ependymoma. The patient was a boy. Decompression without removal of the tumor resulted in complete relief of the symptoms.

Case 17. Pre adolescent hypopituitarism caused by a pituitary adenoma. The patient was a girl of 12 years. Removal of the tumor resulted in relief of the symptoms.

Case 18. Astroblastoma. The patient was a boy of 6 years. Removal of the tumor was followed by practically complete recovery which still persisted three years later.

In summarizing Cushing emphasizes (1) the predominance in children of cerebellar tumors usually near the midline (2) the frequent enlargement of the head with appearance of the signs of intracranial pressure and resulting impairment of the eyesight because of late diagnosis (3) the importance of vomiting as a sign of brain tumor in children and (4) the fact that in many cases of glioma surgery gives extremely favorable results. He urges frequent ophthalmoscopic examinations in the cases of children with unexplained vomiting enlargement of the head and unsteadiness.

ALBERT S. CRAWFORD, M.D.

Sachs E. The Present Day Status of the Surgery of Brain Tumors. *S. M. J.* 97: 71-72.

Sachs compares the surgery of brain tumors of fifteen years ago with that performed today. Fifteen years ago craniotomy for tumor of the brain had a mortality of 80 per cent. It was unusual for the tumor to be found and still more unusual for it to be removed and the usual procedure was a decompression which was not well done as its underlying principles were not well understood.

Three types of brain tumor—the endothelioma, the glomatous cyst and the solid glioma—are discussed and illustrative case histories are reported. It is in the treatment of solid gliomas that there is the greatest need for progress. These neoplasms

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

Miller G C Cerebral Concussion Arch S 1927 11 89

The author discusses cerebral concussion and contusion and reviews the literature. The investigation here reported was begun to determine the physiological response of the brain to an injury which might cause coincident concussion and contusion but as it soon became obvious that our ideas regarding concussion must be more definite the study was ultimately directed toward establishing the essential pathological and physiological foundation of uncomplicated concussion.

The attempt is made to determine the effects of (1) blows on the head (a) a single severe blow (b) repeated light taps (2) an electrical current on the medulla oblongata (a) a weak induced current (b) a galvanic current of 120 volts (3) direct mechanical pressure on the medulla oblongata and (4) cerebral anemia.

The technique of the experiments is described. Miller concludes that concussion is immediate in onset and tend toward spontaneous recovery without sequelae. It must be sharply differentiated from gross lesions such as contusion and multiple petechial hemorrhages. The most important sign is complete unconsciousness with or without medullary symptoms. Cerebral anemia is not a causative factor. The condition appears to be due to direct mechanical action on the cells causing a disturbance of cell equilibrium and temporary loss of function. The medullary effects are those of stimulation or paralysis of the respiratory, vagus and vasomotor centers. The respiratory center is the first to be paralyzed. As the paralysis is usually temporary, artificial respiration may save life. Death from concussion is immediate and due to respiratory paralysis with consequent asphyxia.

GILBERT C A M D

Schuster J The Operative Treatment of Epilepsy Encephalograms in Epilepsy a du Fu then Contribution on the Effect of Hyperventilation (Zur pathologischen Theorie der epileptischen pathologischen bei Epileptischen die klinische Wert der elektrographischen Wirkung der Hyperventilation) 4 cl f pathologie nerven 1926 9 6

By repeated careful studies of encephalograms on different days and especially by tracing the pictures on transparent paper and comparing the tracings with the illustrations of cerebral topography in textbooks Schuster is able to see the frontal convolutions the central gyri the parieto-occipital

gyrus and the insula. The entire subarachnoid space could also be recognized. The latter is sometimes more distinct than the furrow outlines which especially in atrophy of the convolutions and cystic degeneration of the furrows are themselves very distinct.

In his encephalograms Schuster could often make out the maximum extent of the changes in the brain surface a finding which was of value in the graphic localization of the spasm centers. By seven case reports he shows how by means of these encephalographic studies with hyperventilation the spasm centers in epileptics were found so that a curative operation was possible.

Hyperventilation does not always cause motor disturbances in some cases it may produce psychomotor attacks. The latter are usually cases of epilepsy in which the clinical picture is dominated by emotional disturbances. WREDE (7)

Cushing H The Intracranial Tumors of Pre-Adolescence in J Dis Child 97 vi 55

In the past fifteen years there were seen in the Peter Bent Brigham Hospital Boston 1108 cases of verified brain tumors of which 53 occurred in children under 5 years of age 600 cases probable but unverified brain tumors and about 600 cases of suspected brain tumors. Of all types of brain tumor only about 60 per cent are apt to occur in children. These are (1) the gliomas (2) congenital tumors and (3) tuberculomata. The ratio of cerebral tumor to cerebellar lesions in children is 2:1 where as in adults it is 1:1.

Cushing discusses the three large groups of tumors in children in inverse order of their numerical importance.

1. Tuberculomata. Of the sixteen verified tuberculomata the series of cases cited only six occurred in children. This is a marked contrast to the old statistics which give the incidence as 50 per cent. They occur most frequently in the cerebellum. It is better not to remove them. The ultimate prognosis is more unfavorable than that of most true neoplasms.

2. Congenital tumors. The majority of congenital tumors are suprasellar and arise from a malformation of Rathke's pouch. They cause a disturbance of pituitary function and are present from birth. In about 80 per cent of the cases reviewed the walls of the cyst were calcified. The results of treatment were not very favorable so far as cure is concerned.

3. Gliomata. Gliomata constitute 75 per cent of tumors of the brain occurring in children and about 37 per cent of those occurring in adults. They are not all seriously malignant as is commonly thought. The life expectancy depends upon

## SPINAL CORD AND ITS COVERINGS

**Armour D** The Surgery of the Spinal Cord and Its Membranes Lecture II *Lancet* 1927 cxi 533

The author discusses circumscribed serous spinal meningitis gives a brief review of the history of the condition and describes the anatomy of the spinal cord membranes and their reaction to injury. Adhesions give rise to cysts may form following injuries of the arachnoid whether the dura is injured or not. Trauma to the arachnoid may be produced by infection. In such cases the serous spinal meningitis may be diffuse.

The symptoms of the condition are those of extramedullary tumor of the spinal cord but there are certain factors which aid in the differentiation. One of these is the variability of the symptoms at short intervals. This is the most characteristic feature of the clinical picture. Stooler is quoted as saying: A prolonged history, a positive cerebrospinal fluid manometer result and a normal total protein content are the most important points in the differential diagnosis from spinal cord tumor.

GILBERT A. D. R. O. V. D.

**Armour D** The Surgery of the Spinal Cord and Its Membranes Lecture III *Lancet* 1927 cxi 691

Armour reviews the various procedures which have been used to relieve the pain of inoperable malignant disease of the spinal cord and the visceral crises of tabes dorsalis.

Dorsal root section for the relief of neuritic pains was first proposed by Dana and first carried out for that purpose by Bennett in 1888. It was first applied to the relief of the gastric crises of tabes dorsalis by Forster and Kuetner in 1908. There have been various modifications of Forster's operation based on the different theories as to the mechanism of the pain in tabes dorsalis. The results have varied from complete failure to a few cures. In many cases which the pain was relieved it later returned. The chief disadvantages of the operation are that it requires an extensive laminectomy on a patient who is usually a poor risk and is followed by loss of sensation to touch motion and position as well as of sensation to pain.

Schueler in 1910 suggested partial section of the spinal cord. In the same year Cushing suggested entrie or partial cord section and in 1916 Armour and Cushing performed such operations with very satisfactory results.

In 1911 Spiller suggested section of the anterolateral columns for the relief of the pain from malignancy and in the same year this operation was performed by Martin with satisfactory results. Cadwalader and Sweet worked out the technique on dogs. In 1912 Beer performed the second operation on this type. In 1910 Frazier reported 12 cases in which he had operated for the relief of pain due to malignancy or gunshot wound. In

1915 Souttar did the first anterolateral section for the gastric crises of tabes complete relief of the pain resulted. Since 1915 several other surgeons have reported series of cases in which this operation was done.

In his review of the physiology and anatomy of the spinal cord Armour points out the main afferent tracts and their relation to the crossed and direct pyramidal tracts. He states that the impulses of pain and temperature sense are carried by the tracts in the opposite anterolateral column zone. These are Gower's tract and the lateral basilar ground bundle.

While it is supposed that each specific impulse has a different tract for its conduction the exact location of the tracts is not yet known. Forster places the temperature paths in the dorsal part of the anterolateral tract and the pain paths immediately in front of them. Shiff Karplus Brendle and others believe that the gray matter also conducts pain sensation. Forster regards the extrafunicular paths for pain through the gray matter as only by passes.

The technique of section of the anterolateral tract offers no special difficulties. The level depends upon the location of the pain. The section should be made from one to four segments above the upper level of the pain. The knife should enter the cord anterior to the dentate ligament and emerge at the side of or partly in the emerging anterior root. The depth should not be deeper than from 2.5 to 3 mm. Section should be bilateral if necessary.

Greenfield has recently suggested a new method of performing chordotomy. His procedure is a mediolateral section of the cord. This is applicable to the same type of case as the anterolateral tract section and has the advantage over the latter that a bilateral effect is obtained by one incision which completely destroys all of the pain conducting fibers crossing at the level of the incision. Other advantages are that it is simpler than the lateral section and associated with no danger of injury to the crossed pyramidal tracts. The incision must be made exactly in the midline and about 1 in. long. Injury to the anterior spinal artery must be avoided. The author performed this operation in December 1926 in a case of tabetic gastric crises but the patient died a few days later from pneumonia.

The second part of the article is devoted to a discussion of telangiectasis of the spinal cord and its membranes. This condition has been described by various names such as angioma, hæmangioma, cavernous angioma and varicocele of the cord. By some it is regarded as a congenital anomaly but by others it is believed to be of neoplastic origin. According to a third theory it is the result of peripheral constriction with secondary vasodilatation.

In most cases it is the posterior vessels which are involved. The condition occurs most frequently in the cervical and lumbosacral regions. Trauma may





the vagus nerve having its primary origin in the neuroepithelial germ of the developing embryo.

In the discussion of this report BLOODGOOD said that he had never seen a similar tumor and that in his 200 nerve sheath tumors there was none with epithelial cells.

HORSLEY also reported that he had never seen or heard of a similar neoplasm.

LEWIS agreed that the neoplasm was unusual and emphasized the importance of wide removal of such a tumor, the restoration of function being of secondary importance. ALBERT S. CRAWFORD, M.D.

### SYMPATHETIC NERVES

Cutler, E. C. Summary of Experiences Up to Date in the Surgical Treatment of Angina Pectoris. *Am J M Sc* 927 clx 63

This is a digest of the literature and a discussion of the different surgical attempts to date to relieve the pain of angina pectoris. The aim of the surgical procedures has been to interrupt the nervous arc by which the sensations of pain are carried upward and is a purely symptomatic form of treatment.

François Franck first proposed operative treatment in 1899. Jonnesco first practiced it in 1916 removing all the cervical and the first dorsal sympathetic ganglia on both sides. His result was very satisfactory but the treatment did not become popular at once. In 1923 Coffey and Brown reported five cases and advocated merely removal of the superior cervical sympathetic ganglion or division of the trunk between this ganglion and the heart. Since 1923 many cases have been reported in which numerous variations of this procedure have been tried with varying success.

In a review of the anatomy the author shows the connections of the vagus and sympathetic chains with the heart, aorta and the central nervous system by means of a diagram. The depressor nerve (branch of the vagus) is afferent. The superior sympathetic ganglion is apparently purely motor. Sensory fibers in the sympathetic system run from the heart only as high as the middle cervical ganglion. The afferent sympathetic fibers whether going to the middle or inferior ganglia and eventually in the stellate ganglion and there are connected with the afferent fibers to the cord. The only fibers which must be considered are the depressor nerves, the fibers going from the heart to the middle and inferior cervical ganglia and the thoracic and stellate ganglia.

On the basis of experimental findings it seems unlikely that the depressor nerve is the pathway of the sensations of pain in angina pectoris. Moreover it is very difficult to isolate the nerve with certainty. We assume that pain originates in the heart and that the pain in the upper thoracic region and arm is referred from an overflow in that region of the spinal cord.

Cutler has made a critical analysis of 120 cases selected from the literature. These are divided into five groups according to the operative treatment: (1) the complete Jonnesco operation, (2) operations upon the cervical sympathetic chain, partial or complete, (3) operations upon the depressor nerves, (4) combined operations upon both vagus and sympathetic nerves, (5) procedures aimed at the posterior roots themselves. The results were as follows:

Group 1: good results in 62.9 per cent, definite improvement in 18.5 per cent. Group 2: good results in 41.5 per cent, improvement in 35.8 per cent. Group 3: good results in nine of twelve cases. Group 4: improvement in both of two cases. Group 5: good results in 40 per cent, improvement in 43.3 per cent.

From these figures it appears that the Jonnesco procedure gives slightly better results than the other cervical sympathectomies but has a slightly higher operative mortality (11 per cent). It appears also that the results of cutting of the motor pathways (superior cervical ganglion) are not as good as those of section of the sensory pathways (the lower ganglia). Since in some cases in which the superior ganglion was left the pain recurred in the area of its distribution, this ganglion must sometimes be a factor in angina pectoris.

The operations on the depressor group are too few to warrant conclusions and there is considerable doubt as to whether the nerves were actually cut. The injections upon the posterior nerve roots seem too uncertain and fraught with danger to appeal as routine methods of attack.

In conclusion the author states that further experience will be necessary to settle the question regarding the extent of the operation indicated. The failure of any single procedure to cure in all cases and the variations in results from various procedures make us realize that much is yet to be learned regarding the mechanism of the pain in angina pectoris and the anatomy and physiology of the sympathetic nervous system.

ALBERT S. CRAWFORD, M.D.

occasionally be a factor. In some cases there are associated nerves suggesting a congenital origin. Variation of the symptoms is a diagnostic feature. The onset is usually sudden and the development rapid. There may be complete or partial recovery for years. Exploration is the only sure method of diagnosis. Ligation is not often a viable or possible. Leaving the dura or vitreum may result in some benefit. (Abstracts of Currents in Medicine)

## PERIPHERAL NERVES

Jalowitz, A. The Prognosis of Peripheral Nerve Injuries Treated Surgically (Zentralblatt für Chirurgie) 1931, 57, 11, 1161-1165.

Of 203 cases of nerve injury operated upon during the war in the von Sclerberg clinic a re-examination was made in ninety-six. All of the latter were cases of gunshot wounds. At the majority were the following: from seven to ten years had elapsed since the operation.

The result and performed previous unfavorable experience regarding the end results of nerve suture. The brachial plexus was involved in eighteen cases, the radial nerve in twenty-nine, the median nerve in nineteen, the ulnar nerve in fifteen, the sciatic nerve in eleven, and the peroneal nerve in three. In fifty-six (27.6%) of the ninety-six cases the result was no improvement and in fifty (52.6%) moderate improvement. Marked improvement occurred in only nine. There was no complete cure.

The prognosis is better when operations performed in the first six months after the injury but may be good up to the ninth month. After the ninth month it is absolutely unfavorable. The motor fibers recover the most easily and rapidly. In the case of the sensory fibers the prognosis is less favorable. The vasomotor fibers never recover function.

The best results were obtained in the radial nerve and the next best in the median and sciatic nerves. In the case of the ulnar nerve and particularly of the peroneal nerve the results are decidedly less favorable.

The results were best in the cases of neurotomy. When extraneural neurotomy was done no favorable results were obtained in about 50% of the cases. These in the majority of the cases with marked improvement.

In cases of nerve suture surrounding the case with a flap of muscle appears to give some better results than tubulization or surrounding it with fat. In a case in which tubulization was done without suture there was no improvement.

Full wing neurotomy is the beginning of improvement. It is not within the first half year, whereas full wing neurotomy is not noted between the third and ninth months. As a rule improvement in cases by the end of a year but in some cases may continue for two or three years. Very atypical.

not uncommon association of good electrical excitability of the nerve with defective power of active contraction. In such cases some electrical improvement may be obtained from physiotherapy, massage and electrotherapy. (Zentralblatt für Chirurgie)

Lanford, J. A. and Lohm, L. (Fendlyman) Neoplasm of the Median Nerve with Case Report. (Surgical Abstracts) 1931, 57, 11, 1161-1165.

The case reported was that of a man 35 years of age who sought treatment for pain in the right shoulder extending down into the hand. He had been present for six months and was becoming progressively worse. It began following a sudden strain and was accompanied by marked atrophy and weakness of the right forearm and hand.

Examination revealed a hard nodule on the inner side of the elbow just above the terminal cord. Involvement of the median nerve was indicated by paralysis, atrophy, trophic changes and hyperesthesia over the distribution of the nerve.

On exploration the tumor was found to arise from the median nerve. It was removed by cutting the nerve above and below it. The proximal end of the nerve was then sutured end to end into the ulnar nerve and the distal end into the latissimus cutaneous.

Grossly the tumor was spindle-shaped, 7 cm. long and 3 cm. wide in its greatest diameter. It appeared to be a neurofibrosarcoma. On histological study a tentative diagnosis of carcinoma of the glanglion cell type was made but the primary origin of the growth was undetermined.

Four months later the patient returned with a recurrence of the site of the tumor. The tumor was removed. On exploration the growth was a recurrent tumor. In its removal the cutting was more likely than in the removal of the primary tumor. The pathological report a recurrent carcinoma similar to the primary growth and of unknown origin.

Eight months later the patient returned with an apparently recurrent tumor in the same region. This again seemed to extend deeper and involved the structures of the elbow. Four months later the tumor was amputated at the junction of the middle and upper third.

The histological diagnosis is of this tumor was neurogenic sarcoma with absence of the glandular element.

The authors point out that the tumor in this case was unique in that it had the histological characteristics of an epithelial tumor but in connection to suggest a neurofibrosarcoma. It appeared to arise from the median nerve. It developed the characteristics of a neurogenic sarcoma but with the retention of a glandular structure. The authors opine that it is an epithelial structure containing gland-like spaces in a neuroglia matrix and probably sprang from a cell which carried down from the central nervous system during the development of the

case These tumor cells constitute the Paget cell Their growth is intra epidermal

2 The invasion of the epidermis leads to reactive changes in the underlying connective tissue—infiltration of plasma cells etc new formation of capillaries congestion with serous exudate In this way the characteristic appearance of the nipple results Later the superficial layers of epithelium may become destroyed and this process may spread

3 The disease of the ducts which may be called an intraduct carcinoma may be said to have a low degree of malignancy as it may affect systems of ducts and even spread to the acini without breaking through the normal confines

4 The growth of the tumor cells is in the first instance intra epithelial and in the larger ducts and sinuses much proliferation may occur before the internal lining is broken

5 The growth within the ducts or acini may ultimately break through an ordinary infiltrating cancer then resulting Both Paget's disease and ordinary carcinoma are thus possible sequels of intraduct carcinoma FRANK C ROBITSHEK M D

#### TRACHEA LUNGS AND PLEURA

Santee H E Bilateral Massive Collapse of the Lung 4 S 9 7 1934 608

Santee reports two cases of bilateral massive collapse of the lung with the autopsy findings Autopsy revealed no obstruction of the bronchi The microscopic preparations in both cases showed a tissue which it was difficult to recognize as lung, resembling that of a solid organ This appearance was found to be due to complete atelectasis of the pulmonary alveoli the epithelial cells of which were closely packed together having lost entirely their normal alveolar arrangement The individual cells were swollen certain of them being obviously hydropic and the cell outlines were rather indistinct The bronchioles were also collapsed for the most part many of them being represented merely by circular clumps of cuboidal cells The capillaries arterioles and venules on the other hand were all uniformly dilated and filled with blood which in certain areas produced almost an angiomatous appearance This constituted the most characteristic feature of the histology of the condition

In Santee's opinion the best explanation of the collapse seems to be a reflex disturbance producing a constriction in the air passages which probably affects the small bronchioles is not dependent originally on infection and acts on both lungs

Achilbald E and Brown A L The Dangers of Introducing Iodized Oil into the Tracheobronchial System J Am Med Ass 19 7 1 1931

Besides its manipulative and technical difficulties every method of introducing iodized oil into the tracheobronchial tree has certain potential dangers such as the danger associated with the anesthetic

used whether local or general and the possibility of local sepsis and laryngeal edema In the use of the intertracheal route there is the danger of a false passage Bronchoscopic examination has its own dangers In the deglutition method there is the possibility that large quantities of the oil may reach the stomach

Transportation by the oil of infective material from the mouth or larynx into the pulmonary alveoli is probably rare but when it occurs an antiseptic action cannot be expected from the lipiodol

The introduction of lipiodol into the tracheobronchial tree generally excites cough both at the time the oil is introduced and after it has reached the bronchi of the second order The cough may in turn activate the pathological process already present in the lung or cause the spread of the lipiodol with infected material into the healthy alveoli this resulting in the rapid development of bronchopneumonia

Acting as a foreign substance in the lungs the oil may produce cough and reduce the vital capacity by causing more or less respiratory embarrassment through its action as a plug Because of its plugging action and because it floats it may cause the retention and absorption of purulent secretions in the dilated bronchi and alveoli Through stasis in the portion of the bronchial tree distal to the block it may favor the development of a fresh infection

Since it is impossible to regulate the dosage of iodine administered by the intrabronchial route either as to the amount or the rapidity and duration of absorption such a procedure subjects the patient to the possibility of iodism In the cases of tuberculous patients it may have a sensitizing effect with activation of the quiescent disease It may also add an acute process of the respiratory tract to an already present pathological process from iodism the usual congestive action of iodine or the projection of infected sputum through coughing into healthy portions of the lung

FRANK C ROBITSHEK M D

Burrell L S T Edwards A T Martin G E Wilkinson K D and Othe's Discussion on the Treatment of Chronic Non Tuberculous Infection of the Lungs Proc Roy Soc Med Lond 1931 24 731

BURRELL states that in bronchiectasis the treatment must depend on the severity of the disease Sometimes the condition is most offensive but in a mild case may cause the patient little if any inconvenience and the treatment must not expose him to greater risk than the condition The cause must be searched for and if possible removed Simple measures should be tried first Drainage by posture is often sufficient to cure Creosote is the most beneficial drug and is best given by inhalation in a creosote chamber Artificial pneumothorax is successful if the disease is unilateral and the lung can be collapsed Usually however there is too much adhesion of the pleura

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

**Part D. Intracystic Papillomatous Tumors of the Breast: Benign and Malignant. An Analysis of 124 Cases. Arch. S. & 1927, 24, 793**

This article is based on a study of 104 benign intracystic papillomatous tumors of the breast, twenty-four malignant tumors and five tumors the nature of which was uncertain. From his analysis of this material the author concludes that the benign papillomatous cyst is a distinct type of tumor with a fairly uniform history and physical findings. A nipple discharge usually bloody occurred in 66 per cent of the cases reviewed. This may be present in the absence of a palpable tumor. Under such circumstances it demands close observation but is not an indication for operation. In the cases reviewed the tumors of the benign group were found to appear at any age after puberty but the malignant tumors occurred only after the age of 35 years. All but 2 per cent of the patients were females. The duration of the tumors was extremely variable, some were present for from twenty to thirty years. The growths may have a firm nodular indurated consistency due to multiple cysts tensely filled with fluid and so situated as to suggest a single tumor. They occur most frequently in the central zone of the breast but occasionally in the periphery.

Contrary to the usual belief the tumors were multiple in about 50 per cent of the cases although clinically they were classed as single in 83 per cent. They are usually small but in 38 per cent of the cases they were over 6 cm. in diameter. There may be some retraction of the nipple due either to the mechanical action of the tumor in pressing on the ducts or to the contraction of scar tissues when infection is superimposed. The skin is usually normal but may be tense, thin, shiny and red or show a sinus from rupture. Changes in the size of a tumor associated with a bloody discharge from the nipple is almost pathognomonic of a papillomatous cyst. Pathological examination usually reveals a cyst with one or more papillomata, a thin wall and no invasion. Frequently there are multiple cysts surrounded by all types of epithelial proliferation or associated with hemorrhage or infection causing fibrous proliferation.

Of the group of cases of malignant tumors a large percentage presented the picture of cancer clinically grossly and microscopically. Apparently the cancer may arise from a papillomatous cyst or occur in a breast that is the site of one or more of these tumors. The duration of the condition is usually short but in one case the lesion was present for thirteen years during the first eleven of which it was probably benign. No other patient gave a history

that would suggest malignant change in a benign tumor. Large tumors were more common and pain was more often a symptom in the malignant group.

In a very large number of the cases of benign tumors radical treatment was given. Forty per cent of the patients with such growths were subjected to amputation of the breast and 38 per cent to radical operation with removal of the pectoral muscle and axillary glands.

Most of the diagnoses of cancer or suspected cancer have been made at exploratory incision. Removal of the breast alone in cases suggesting cancer is unjustifiable, being unnecessarily radical if the lesion is benign and insufficient if it is malignant. An accurate diagnosis can be made better by clinical observation than by exploratory incision. The character and attachment of the papilloma to the cyst wall are of more value in the diagnosis than the nature of the cyst contents.

As patients are now coming under observation earlier the diagnosis is more difficult and the cancer is more apt to be found at exploratory incision. The tumor should be excised and then thoroughly examined.

Of the patients with benign tumors 65 per cent were followed for from one to twenty years. None developed cancer. This fact and the fact that a large percentage of the patients who suffered from malignancy died of recurrence are proof of the essential difference between the two groups. The impression that the malignant tumor has a relatively low grade of malignancy is erroneous and was gained from the grouping of benign tumors with cancers.

L. A. M. ZIGLER, M. D.

**Mr. R. Paget's Disease of the Nipple and Its Relationships. J. Path. & Bact. 1914, 9, 72.**

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Muir describes the pathological changes in Paget's disease of the nipple, gives his opinion on their nature and significance and cites the chief theories advanced by others.

He discusses in detail the change in the duct, the extension of the condition to the cutaneous changes in the epidermis, the origin of lactiferous cells, the reactive phenomena and the direct spread of the cancer to the epidermis. Five cases are reported. Excluding from consideration the cases in which the epidermis of the nipple is invaded by the direct intra-epidermal spread of the cell of an ordinary carcinoma infiltrating the underlying cutis. Muir draws the following conclusions:

1. Paget's disease is the result of the invasion of the epidermis of the nipple by tumor cells of glandular type which reach it in the lymphatic stream of the lactiferous ducts affected by neoplastic dis-

selves. In non tuberculous diseases of the lungs the bronchoscope is a valuable aid in localizing pathological conditions and determining the particular bronchus or lobe of the lung that is involved. The removal of a foreign body from the lungs in these conditions effects a cure of the accompanying infection in 90 per cent of the cases.

Contraindications to bronchoscopic in the treatment of diseases of the chest are very few. Recent hemorrhages and high fever with its accompanying prostration demand postponement of such treatment. Concurrent severe heart infections may preclude bronchoscopic as it does any type of operation. The patient who shows all the signs of an acute toxemia is of course beyond bronchoscopic aid.

By the use of the bronchoscope any cavity within reach can be sucked entirely dry and in many cases its walls may be collapsed. Bronchoscopic drainage is better than natural drainage.

In cases of circumscribed lung abscess the bronchoscope is useful in localization but the only treatment is the external operation.

Martin has examined and treated thirty-one cases of bronchiectasis. First as complete aspiration as possible was done with the use of a fairly strong pump attached to the aspirating bronchoscope and a vacuum suction pump on a two way cannula passed through the bronchoscope into the cavity. Then when the cavity had been emptied it was washed out with weak boric solution and dried. In most cases it was afterwards swabbed with alcohol. The percentage of cures has not been large.

Lipiodol injected through the cricothyroid membrane is broken up into globules by the air draught in the trachea and the heavier these globules adhere the appearance of a cavity is presented.

Wilkinson discusses the etiology, diagnosis and treatment of bronchiectasis. He states that in the treatment three measures seem to give good results: (1) postural drainage, (2) creosote inhalations and (3) vaccine therapy.

C. R. R. STEINKE, M.D.

Holman E. Chandler, L. R. and Colley C. L.  
Experimental Studies in Pulmonary Suppuration. *Surg. & Obs.* 1917, 21, 38.

The authors applied to studies of tuberculous infection of the lung the technique which Holman and Cutler, Weidman, Schluter and others have recently used in the production of non tuberculous pulmonary infection namely the introduction into the jugular vein of small segments of vein made into capsules in which were enclosed live human tubercle bacilli and a lead shot immersed in paraffin the latter to aid in x-ray localization.

Marked pathological changes were invariably produced. Their extent depended upon the interval of time which had elapsed since the introduction of the embolus. The changes were successively: anemia, infarction, caseation, central softening and abscess formation. The sequence of events was much

slower and more constant than that associated with pyogenic emboli.

The effects of pyogenic emboli were most uncertain. In some of the animals the introduction of a pyogenic embolus caused only a local consolidation of the lung with early recovery. In others it produced a hemorrhagic infarction followed by recovery or by central softening and abscess formation. In still others it caused a massive hemorrhagic consolidation and death. The authors attribute the variations to the site of lodgment of the embolus and the amount and location of thrombus caused by it. They cite MacCallum's observation that infarction is more apt to occur when some other condition causes a general slowing up of the circulation of the lung as in postoperative passive congestion.

During the experiments reported the authors developed a method for the primary closure of a primary bronchus. The most important elements in this procedure are the avoidance of trauma and the insertion in the peribronchial tissues of a double row of inverting sutures. J. FROEY R. HEAD, M.D.

Anderson J. P. Pneumothorax Treatment of Lung Abscess. *Oh. Stat. M. J.* 1917, 22, 9.

The prognosis of lung abscess has been universally poor. Of 110 cases not operated upon which were reported by Lord recovery resulted in 10 per cent, partial alleviation in 15 per cent and death in 75 per cent. Of the 11 cases in the series which were operated upon recovery resulted in 15.3 per cent, partial relief in 18.8 per cent and death in 47.9 per cent. Lord gave pneumothorax a very small place in his treatment but Anderson characterizes it as a simple and safe procedure which will cure some cases and render others better candidates for surgical procedures. Anderson reports the cases of six patients treated by pneumothorax two of whom were completely cured and four of whom were greatly benefited and made better candidates for operation.

Two of these patients developed valvular pneumothorax and pyopneumothorax. One was treated by surgical drainage and recovered. The other an elderly woman with poor resistance left the hospital too soon and could not be followed up. Her condition was therefore not recognized soon enough and terminated fatally. In another case pneumothorax was beneficial until the development of pneumonia followed by dense adhesions. Surgical drainage was then indicated and was successful. One case of very large abscess was prepared by pneumothorax for thoracoplasty.

Anderson concludes that palliative treatment should be tried first but if it does not result in improvement in a month some other form of treatment is necessary. When surgery is contemplated the patient's general condition must be considered. The best results are obtained only by close cooperation between the internist, surgeon and bronchoscopist. CHESTER L. CREAN, M.D.

Chronic evolution has been found when pneumothorax alone has not been sufficient and especially when there has been considerable adhesions to the diaphragm but in Burrell's experience this operation has not proved of great value. In some cases very good results have been obtained from aspirating the bronchiectatic cavities and washing them out through a bronchoscope. In a few cases Burrell has seen excellent results from thoracoplasty but in the majority this treatment has been disappointing. Sometimes the condition may be alleviated by opening one or more bronchial cavities. Partial lobectomy by cautery seems to be a very promising operation but as yet has been done in relatively few cases. In treatment by pneumolysis the lung around the diseased area is collapsed by stripping of the pleura and inserting wax or fat. This procedure has not proved very successful. Lobectomy also has been done but is extremely dangerous.

Acute abscess of the lung often yields to simple treatment—rest, hygienic measure, posture, etc. If there is no improvement in a month Burrell advocates artificial pneumothorax. In one of his cases in which artificial pneumothorax failed the patient made a good recovery after partial thoracoplasty.

Pneumococcosis is regarded by some as a frequent complication of chronic pulmonary disease. From examination of the sputum in a large number of cases Burrell concluded that the yeast cells so often seen come from the mouth and not from the bronchi or lung tissue except in very rare instances.

EDWARDS discusses (1) chronic simple abscess of the lung (2) chronic bronchiectatic abscess and (3) bronchiectasis.

Chronic simple abscess consists of a localized suppuration in the parenchyma of the lung not communicating at first with a bronchus and surrounded by an area of chronically inflamed solid lung tissue. No attempt should be made to confirm the diagnosis by needle aspiration unless it is certain that the pleurae are adherent. Because of mucosal swelling in the communicating bronchus lipohol rarely enters the cavity. As the condition is chronic it may be inferred that ordinary treatment has failed and that more radical measures are indicated. Artificial pneumothorax may be of value in some cases but is more beneficial at an earlier stage.

The ideal treatment is pneumotomy with drainage of the abscess to the exterior. This should be done under local or intratracheal anesthesia. Because of the swelling of the mucosa of the communicating bronchus drainage occurring through the bronchus is rarely adequate.

As healing progresses the larger abscesses give rise to considerable fibrosis and often the desire to secure a bronchiectasis. In order to complete the cure and to get rid of all expectation it will be necessary in some cases to perform phrenic evulsion to diminish the lung capacity on the affected side. Unless this is done thoracoplasty may be required later.

The bronchiectatic abscess is a multilocular abscess cavity situated most frequently in the lower lobe and communicating with several bronchi. Foreign bodies may be the causative factor. These cases should be primarily investigated by the bronchoscope to eliminate the presence of a foreign body. Continuous lavage is satisfactory only in a few cases. Pneumotomy has been fairly encouraging and accounts for the success of drainage operations in some cases described as bronchiectatic. Because of adhesions artificial pneumothorax is unlikely to prove of much value. However if the operation is properly completed and free drainage of all pockets is established gradual obliteration of the cavity occurs. Subsequent phrenicotomy or thoracoplasty may be required to close the cavity.

Bronchoscopy should be performed as a routine in all cases of bronchiectasis and if a foreign body is found it should be extracted. In bilateral cases the scope of surgical treatment is limited and the likelihood of benefit is diminished. Two surgical measures may be adopted: (1) regular evacuation of the dilated bronchus with the bronchoscope followed by the instillation of antiseptic solutions (2) bronchostomy.

In the past unilateral cases have been treated by the following procedures:

1. Artificial pneumothorax. Even when complete this is likely to be of permanent benefit only in the very early stages of the condition.

2. Drainage through the chest wall. This is very unsatisfactory and has been abandoned.

3. Bronchial ligation by way of the trachea. This has proved of more value during the early stages and in some cases may give considerable improvement if not cure.

4. Bronchostomy. This is rarely adequate but in a few cases may result in marked amelioration.

5. Phrenic avulsion. This generally leads to diminution of the sputum or fever or both but the author has yet to see it where an established case of bronchiectasis.

Thoracoplasty, the collapse of the hemothorax, extrapleural resection of the parietal pleura from the first to the tenth rib, etc., are expected to lead to consumable collapse of the underlying lung but because of the risk of the affected areas do not allow collapse. Frequently when it is possible to collapse cavities in the periphery of the lung the chest near the hilum remains free.

Edwards has performed pneumotomy with cautery twice and lobectomy once as a preliminary. They could be done only in carefully selected cases.

MARRAS states that the use of the thoracoplasty is still in the experimental stage. A many bilateral conditions can be treated surgically by cysticectomy so that many chest conditions are referred to the endopneumothorax treatment. Cases of bronchiectasis or lung abscess or the aspiration of the pus lying stagnant in the cavity or for lavage or medication of the cavities them.

with Pott's disease suggested the question as to the removal of a foreign body lodged below the kyphosis. Schall therefore studied the effect of scoliosis and kyphosis upon the œsophagus by roentgen examinations of forty five patients with spinal deformity.

This report is made up chiefly of roentgenograms of the cases studied. It was found that in spinal deformities the œsophagus tends to maintain its normal relation to the anterior surface of the vertebrae and to follow the curvature of the spine. The complete filling of the œsophagus with barium and the evident dilatation suggested exaggeration of twisting at the cone of the diaphragm. The author concludes that a foreign body lodged in the œsophagus above the apex of the kyphosis may be reached by oral œsophagoscopy, but for the removal of a foreign body lodged below the apex gastrostomy with retrograde œsophagostomy may be necessary.

JEROME R. HEAD, M.D.

P. Kotilo. A Case of Antethoracic Esophagoplasty According to the Method of Roux Which Was Followed for Three Years (En Fall d'une Atteinte du Pharynx et de l'œsophage. J. Chir. et Gyn. 1906, 355).

On the basis of two cases, in one of which death resulted from necrosis of the transplanted loop of intestine, the author discusses several questions with regard to œsophagoplasty. Most important in this operation is the preservation of the intestine which is to act as a substitute for the œsophagus. This is possible only when the arterial loops in the mesentery are situated close to the intestine and after section of its mesentery the intestinal loop may be raised easily.

Physiological studies of the newly formed œsophagus by means of a kymograph three years after the operation showed that the transplanted loop maintains its mobility and thereby serves for good conveyance of the food. Swallowing is hindered somewhat by emotional excitement but otherwise the function is quite easy and complete.

In conclusion the author states that in cases in which the vascular loops in the mesentery are not favorably situated, the œsophagoplasty of Roux is not suitable and the œsophagus should be formed from skin.

VIROV (Z)

Morgan E. A. Rolph A. H. and Brown A. Clinical Manifestations of an Enlarged Thymus. Diagnosis and Treatment. J. Am. M. Ass. 1927, LVIII, 703.

The authors have studied fifty four cases of enlarged thymus with special reference to the symptoms.

Breath holding spasms occurred in twenty nine cases. Such attacks come on during a spell of crying. The child holds its breath, becomes cyanotic and usually falls to the ground. Transient unconsciousness may result.

Syncope occurred in nine cases. As a rule the child with syncope is suddenly found unconscious. He is usually pale and his respirations are almost imperceptible. The attack may last from a few minutes to a few hours.

Cyanosis was observed in eight cases. It was not associated with typical breath holding spasms. In three it dated from birth and was persistent. In the remaining five it came on in attacks lasting a minute or longer.

Cough occurred in seven cases. It was the principal complaint in four and was secondary in three.

Noisy nasal breathing occurred in six cases. The authors cannot explain the relationship of this symptom to the thymic enlargement but conclude that it is caused by the latter because it ceases under X ray treatment in the thymus.

Choking attacks occurred in five cases. These attacks come on during feeding and suggest the aspiration of milk. The child chokes, becomes cyanotic and must be turned over and slapped on the back before it recovers.

Other manifestations of the condition noted were typical thymic asthma in three cases, rapid panting respiration in four cases and nervous manifestations such as sleeplessness, restlessness and irritability in three cases. Eczema was observed in twelve cases.

The authors discuss briefly the theories regarding the function of the thymus, the mechanism of the production of symptoms when it is enlarged and the technique and effect of X ray treatment. X ray treatment resulted in relief of the symptoms in 96 per cent of the fifty four cases reviewed. Recurrence of the enlargement and symptoms occurred in twelve (22 per cent) and required further X ray treatment.

JEROME R. HEAD, M.D.

## ESOPHAGUS AND MEDIASTINUM

Kelly A B Nervous Affections of the Esophagus  
*J Laryngol & Ot* 1927 vi 21

The author describes the anatomy of the esophagus and the periesophageal nerve distribution. He points out that the left side of the esophagus projects beyond the trachea while the right half lies beneath it and is compressed by it. Because of this fact the right half may be more liable to cancer than the left half.

Experimental work has shown that stimulation of the peripheral ends of the cut vagi causes contraction over the whole esophagus with dilatation of the cardia but section of the vagi without stimulation is followed by dilatation of the esophagus without relaxation of the cardia. The tonic contraction of the autonomous nervous system produces spasm. The author illustrates this point by roentgenograms of cats anesthetized and fed bismuth and milk. He states that the effect of the sympathetic nervous system upon the esophagus is not well understood.

Epi esophageal spasm is usually found in middle aged women. It is gradual in onset and progresses to the extent that the patient must finally subsist on milk and eggs. Choking spells and regurgitation often occur. On examination of the mouth and pharynx it will be seen that the papilla of the tongue have undergone atrophy. Erosions and frequently leucoplakia are found. The saliva is scanty and the mucous membrane pale. It is thought by some that these affections of the lining of the mouth may be the cause rather than the effect of the spasm. In examination with the endoscope under anesthesia which contrary to the teaching of Jackson causes elevation a thin smooth constriction may be seen. This is readily dilated and at once assumes its normal lumen.

The treatment consists in stretching the constricted cricopharyngeal muscle. The patient is encouraged to believe that she can swallow all types of food and this ability is required before she leaves the hospital. The cure is usually permanent. If a partial relapse occurs it is easily overcome by the passage of a bougie.

In a discussion of the anatomy of the lower end of the esophagus the author points out that cardiospasm occurs at the hiatal region and not at the cardia. The onset of the condition is gradual. With the difficulty in swallowing after meals there is a feeling of weight in the epigastrium. The latter is relieved by drinking or by regurgitation. Weakness and anemia develop. Dysphagia is increased by fatigue or hurrying at meals. When a bolus of food becomes lodged it must be pushed down by a drink of water or by regurgitated mucus. Many patients complain of elevation and epigastric pain of some degree.

The ray gives an accurate picture of the process of deglutition in cardiospasm. The esophagus is seen to be greatly dilated and the cardia closed.

After an interval the upper segment seems partially constricted and the opaque meal begins to pass through the filiform process into the stomach. After a long period of time some of the bismuth will be seen to remain in the esophagus which is markedly dilated and of varying shape depending upon the location of greatest dilatation. Such marked dilatation is not seen in cancer or cicatricial stenosis.

The author employs a general anesthetic for endoscopic examination. This will reveal the dilatation and the rhythmic widening and narrowing of the lumen with occasional relaxation of the cardia. The hiatal level has a peculiar appearance. As the tube reaches this portion the cardia will forcibly contract but if steady and gentle pressure is exerted it will relax after an interval and the tube will slip into the stomach. Heightened reflex activity was looked for in eighteen patients with cardiospasm and was found in seventeen while in thirty patients with affections of the esophagus other than cardiospasm it was absent. The author considers this an important sign.

The patient can alleviate the condition by selecting foods such as biscuits, sponge cake, fish, meat, eggs and certain vegetables. Cold liquids seem to aggravate the spasm. Various positions of the body will aid swallowing. For dilatation the author prefers Gottstein's cardia dilator. Dilatation with this instrument is usually followed by improvement and sometimes by a cure.

The author describes the postmortem appearance of the esophagus in detail. Autopsy reveals a dilatation and thinning of the walls with thickening in places and often ulceration of the mucosa, leucoplakia, etc. A case with hypertrophy of the cardiac sphincter, pylorus and ileocecal valve is reported.

Paralysis of the esophagus is not uncommon in certain diseases involving the nuclei or trunks of the vagi. These conditions must be differentiated from those in which the trouble lies in the pharyngeal muscles or deglutition. Motor cases are found associated with the toxic neuritis following diphtheria. Dysphagia is the most prominent symptom. When the food is washed down with water it enters the stomach with a peculiar sound. This type of disease can be usually traced to some lesion of the nervous system or of bulbar origin. It can be detected on endoscopic examination from the fact that the tube passes through the esophagus without any effort. The esophageal wall is relaxed and dilated and the cardia sphincter can be passed without the usual resistance. The author reports a case of botulism in which this condition was associated with paralysis of other groups of muscles.

WILLIAM J. PIERCE, M.D.

Shill L A The Esophagus in Pott's Disease and Scoffosis  
*Amer J Surg* 1927 34 57

A case in which the author had occasion to remove a chicken bone from the esophagus of a child.





# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Coell F M Recent Advances in the Surgery of Hernia *Lancet* 1927 cc 478

The author divides the history of the hernia operation into three periods represented respectively by (1) herniotomy (2) herniorrhaphy and (3) hernioplasty.

He believes that either an actual or potential peritoneal sac exists in all subjects and therefore all oblique inguinal herniae are congenital.

In the ordinary herniorrhaphy the sutured parts do not stay approximate.

In 1925 the author described a hernioplastic operation for oblique inguinal hernia. In this procedure a pedicle flap is prepared from the inner portion of oblique aponeurosis and a slip from the outer portion. The flap is then sutured behind the cord or round ligament by means of the ligament of Poupert's ligament and above by a thread to aponeurotic or fascial tissue. The external oblique aponeurosis is closed by thread or free fascial sutures.

In the treatment of a direct hernia the direct sac is converted into an oblique sac by traction on the potential oblique sac and the opening is closed as in an oblique hernia.

The operation for femoral hernia is always performed by the inguinal route. The opening in Poupert's ligament is closed by a pedicle flap taken from the lower portion of the external oblique muscle.

Ventral herniae are closed by the use of strips of fascia lata. Three to four inch strips are long enough if they are attached to a looped thread for sewing. A special fascia needle is useful. Defects in the abdominal tissues may be closed by a larger fascial transplant.

The chief causes of recurrences are (1) insufficient resection of the sac (2) defective ligation of the sac (3) the inclusion of sac contents (4) the persistence of a too patent abdominal ring (5) poor closure of the parietes (6) omental adhesions to the line of suture of the sac mouth and (7) suppuration. These are all prevented in the author's hernioplasty.

Statistics are given with regard to recurrences.

MARCUS H. H. and R. M. D.

Morton G B Peritoneal Absorption in Comparison Between the Normal and the Inflamed Peritoneum *Am J M S* 1927 1 517

The possible difference that might exist between the rate of absorption in the normal peritoneum and that in the inflamed peritoneum was investigated by Morton with the hope of obtaining data of value in the treatment of clinical peritonitis.

In a brief review of the literature attention is called to the more generally accepted conceptions of peritoneal absorption.

In experiments on rabbits and dogs performed by the author the animals were catheterized phenol sulphonephthalein was injected intraperitoneally and the urine then tested for the first appearance of the dye. Under properly controlled conditions the rate of absorption of the dye was determined in normal animals in the case with mechanical peritonitis and in those with bacterial peritonitis.

These experiments on rabbits and dogs showed that phenol sulphonephthalein is absorbed at essentially the same rate from the normal and from the inflamed peritoneum in both mechanical and bacterial peritonitis. However in an adhesion type of peritonitis which greatly lessened the peritoneal area the rate seemed to be slightly retarded.

It was further concluded that the presence of hypertonic solution of sugar in the peritoneum did not retard the absorption of dye in spite of the fact that such solutions absorb fluid and increase their own volume while they are in the peritoneal cavity.

## GASTRO INTESTINAL TRACT

Ivy A C The Newer Physiology of the Gastro Intestinal Tract *Am J M S* 1927 cl n 453

The author reviews the known causes and the mechanism of the gastric and pancreatic secretory response to the ingestion of food and briefly summarizes recent advances in the field of gastroenterology.

Gastric secretion may be divided into three phases viz the cephalic phase the gastric phase and the intestinal phase. It is well established that the sight, taste and smell of food in the presence of appetite cause the secretion of gastric juice. The nervous impulses are carried to the stomach by way of the vagi.

In experimental studies it was found that mechanical distention by means of a rubber balloon placed in the pouch of the entire stomach caused secretion of the gastric glands after from five to fifteen minutes. Meat juice or meat applied directly to the gastric mucosa also caused secretion.

The intestinal phase of gastric secretion is due to chemical substances in the food arising from intestinal digestion and possibly from bacterial action in the bowel.

Undoubtedly several mechanisms are concerned in the secretion of gastric juice. They include (1) the secretory nerve (2) increased blood flow and (3) humoral agents.

The pancreatic secretory response is also divided into a cephalic and intestinal phase. The cephalic phase is no gastric phase.

and importance in relation to the surgical prophylaxis and surgical therapeutics of cancer and ulcer

MORRIS H. KAH M.D.

MacCarty W. C. Chronic Ulcer and Carcinoma of the Stomach. *Am J M S* 1927 cl v 466

This article was written to correct widespread misunderstanding of the author's conclusions arising from the improper interpretation of the statements made in previous articles by him. Quotations from the previous publications are used in part.

In this report of a pathological study of 967 gastric ulcers and 1353 gastric carcinomata removed surgically at the Mayo Clinic to date the author makes the following generalizations:

1. Single and multiple chronic ulcerations of the stomach occur.

2. Of the multiple chronic ulcerations one may be carcinomatous and the rest simple.

3. Chronic ulcers whether simple or carcinomatous vary greatly in size, shape and form. As a rule most chronic gastric ulcers larger than 2.5 cm. also show carcinoma. In an earlier series here cited in microscopic examinations indicated that of all the malignant cases examined from 60 to 70 per cent gave evidence of having developed in the mucous membrane border of the chronic simple ulcers. No statement of the number of ulcers becoming carcinomatous is considered possible.

4. The smallest gastric carcinomata have been seen in the borders of simple chronic ulcers and not in the base. Whenever carcinoma has been found in the base it has always been found in the borders (mucosa). The reverse is not always the case.

5. In fresh unfixed tissue the cells of the gastric gland tubules in the borders of ulcerative lesions sometimes appear normal. In other ulcerative lesions the cells are swollen more granular and indistinguishable structurally from the malignant cells, but are found only within the lumen of the gland. These latter are not considered malignant but are under suspicion and ulcers showing this type of cell should be widely excised. Only when the cells of the gastric glands have left the lumen of the gland and have invaded the surrounding tissue are they considered malignant.

6. The relative frequency of resected carcinoma to resected or excised chronic ulcer has changed as a result of the fact that surgeons and clinicians of experience are convinced of the impossibility of differentiating early carcinoma from simple gastric ulcer by clinical means including roentgenoscopy. This is leading to more frequent exploration of gastric lesions for diagnosis with the result that when first seen carcinomata are smaller and more amenable to surgery than in the past.

Mason J. C. and Simon H. E. Multiple Perforated Gastric Ulcer: A Case Report and Review of the Literature. *M J* 1921 v 19

The occurrence of a single perforation from gastric ulcer is not uncommon but the association of

two or more such perforations is unusual. In a review of the literature thirty two authentic cases were found. The authors report a case from the Mayo Clinic. The patient was a boy 18 years of age. At operation two symmetrically placed perforations were found on opposite walls of the stomach. Closure of these perforations was followed by recovery.

In 110 of the cases reported in the literature there were more than two perforations. Seventy two per cent of the patients were under the age of 30 years and 76 per cent were females.

The symptoms resulting from multiple perforations do not differ from those of a single perforation. The treatment is always surgical. It is essential that both of the perforations be found and closed. In eighteen of the cases reported there had been an abdominal exploration but in only four were both perforations closed. The Mayo Clinic case was the only one in which the perforations were situated on opposite walls of the stomach and were both found and closed.

Multiple perforations may occur in a single ulcer in two unrelated ulcers or in two symmetrically placed ulcers. The last type is the most common.

Lewisohn R. and Ginzburg L. The Relation of Postoperative Achlorhydria to the Cure of Gastric and Duodenal Ulcers. *Surg Gyn & Obst* 1917 xli 344

At the present time there is increasing agreement among surgeons that gastric ulcers should be removed by excision with or without an added gastric enterostomy or by partial gastrectomy but the generally preferred method of operative treatment for duodenal ulcer is still gastro-enterostomy.

A review made by the authors of the cases of pyloric and duodenal ulcer in which gastro-enterostomy was performed in the period from 1915 to 1920 on the surgical service of Berg in the Mt. Sinai Hospital, New York, showed that only 50 per cent of the patients were cured and that 34 per cent developed a gastrojejunal ulcer, the most serious complication following gastro-enterostomy. Thus the incidence of gastrojejunal ulcer is much higher than the incidence usually reported but in the authors' opinion it is not fair to include in the statistics only the cases which came to re-operation as has been done by various surgeons. To do so gives an erroneous impression of the frequency of the lesion. The authors believe that 5 per cent the incidence of gastrojejunal ulcer usually given in the literature is much too low.

Since the substitution of partial or subtotal gastrectomy for gastro-enterostomy in the surgical treatment of duodenal ulcers in the authors' cases the percentage of cures has been raised from 50 to 90.

The excellence of the results following partial or subtotal gastrectomy seems to be due to the establishment in most cases of an immediate and permanent achlorhydria. No medical procedure can establish permanent achlorhydria for as soon as

the Reflux test failed to secrete gastric juice after the injection of histamine. However in six of twenty-one cases the diagnosis of achylia was discarded following repeated fractional tests.

Oral fractional gastric analysis including enzyme determinations as well as acid titrations is probably a safe method of diagnosing achylia in most cases if it is frequently repeated but in a few cases acid or enzyme will not be found by this method and there will be a secretory response to histamine. In the present state of our knowledge the diagnosis of a histamine test is not completely definite without confirmation of the histamine test.

In cases of hypochlorhydria the injection of histamine caused a definite increase in the acidity throughout the period of gastric digestion of the 1 hour meal. It hastened the appearance of normal acids and prolonged the period of secretion. In cases of normal acidity the injection of histamine increased the degree of acidity but to a lesser extent than in cases of true gastric acidity. In cases of hyperacidity the stomach did not respond to the subcutaneous injection of histamine.

The authors have found histamine safe and reliable as a method of differentiating between achylia and achlorhydria or hypochlorhydria. However they do not believe that the injection of histamine with or without a water meal is in any way comparable to the fractional gastric analysis as a general test of gastric function. They agree with Refsum that the fractional method yields information as to gastric work and that a definite load must be imposed upon the stomach in order to judge its ability to perform its function. As the normal physiological load is food, food must be used in order to obtain the maximum information concerning the secretory and motor function. In cases of low gastric acidity the oral fractional gastric analysis with the histamine gastric analysis may yield more information than either procedure alone.

ARMSTRONG, S. B. ST. LOUIS, MO.

#### Pannett, C. A. (Gastroduodenal Ulceration)

In cases of gastric and duodenal ulceration surgery is necessary when a vertical ulcer can be demonstrated by X-ray examination. When serious hemorrhage has occurred and when the pylorus is obstructed. In all these cases medical treatment should be given a trial first.

For gastric ulcers the author prefers a resection of some type. When resection will be associated with too great a risk or is technically impossible he performs a gastric enterostomy.

Pannett prefers to do also for duodenal ulcer but prefers a gastro-enteric anastomosis if separation of the callous mass would be difficult without injuring the pancreas or bile ducts or an ulcer on the anterior wall would render duodenotomy too dangerous.

In forty-seven gastric resections there were nine deaths a mortality of 23 per cent. Of twenty

patients treated by gastric resection at least eighteen months ago sixteen (80 per cent) are now entirely well.

In thirty-three cases in which partial duodenectomy was done there were two deaths a mortality of 4 per cent. Of twenty-one patients so treated 85 per cent are now entirely well.

Of nine patients treated by gastroenterostomy during the same period of time only 55 per cent are now entirely well.

J. H. W. WILSON, M.D.

#### Steinberg, M. F. Stomach Mucosa in Ulcer and in Carcinoma. Histological Studies.

Steinberg calls attention to the fact that the stomach has two parts: the pars digestoria and the pars excretoria. The pars digestoria which is the largest proximal part of the stomach makes only tonic contractions and is lined by fundus glands which are frequently hypertrophic (tall mammelonné). The fundus glands are never resistant to disease. Through the pars excretoria or distal part is the active peristaltic waves which propel the food into the duodenum. This part is lined by 15 different types of mucosa which is not as resistant as the mucosa of the fundus glands and is most frequently subject to the various forms of gastritis. It is also in this part of the stomach that ulcers and cancer are found.

The histological examination of twelve stomachs resected for ulcer of the duodenum or ulcer of the stomach and of eight stomachs resected for cancer revealed evidence of gastritis in the mucosa of all. This form of gastritis is characterized by islands of intestine-like mucosa areas of dark stained epithelium with evidence of regeneration and glands with numerous branching alveoli lined with a light stained cuboidal epithelium (pseudo-pyloric glands). There is an increase in the size and number of lymphatic vessels and other lymphoid elements. In the mucosa erosion and small mucous ulcer are frequently encountered.

The changes are limited chiefly to the distal part of the stomach in the area of distribution of the pyloric glands. The mucosa of the fundus plays a form of hyperplasia and hypertrophy with an increase in the number of parietal cells described as état mammelonné. Contrary to the opinion and descriptions found in textbooks in pathology état mammelonné is limited to the fundus mucosa and is not an inflammatory process. The evidence of gastritis was more pronounced in specimens resected for cancer. Gastritis ulcer and cancer are found most frequently in the area of distribution of the pyloric glands. The area of distribution of the fundus glands is seldom the site of disease. The fundus glands are more differentiated and more resistant to pathological change than the pyloric glands.

The mutation of the various gastric diseases to the distal part of the stomach in the area of distribution of the pyloric glands should be of interest.

Stenbuck J B Causes of Death Following Operation for Perforated Gastric and Duodenal Ulcers 1 5 19 19 7 18 v 7 13

It is the general impression that the important factors determining the outcome of the perforation of a gastric or duodenal ulcer are first the length of time elapsing between the rupture of the ulcer and operative interference second the proximity of the time of perforation to the ingestion of food and third the degree of soiling of the peritoneal cavity and third the rapidity with which the operation is performed.

The author lists as other factors of considerable importance the patient's age the type of operative procedure (whether simple closure or closure with the addition of gastro-enterostomy) the repair on the part of the omentum the size of the perforation the amount of gastric and duodenal contents spilled the presence or absence of organic disease (chronic cardiovascular renal or pulmonary disease) and alcoholism.

This report is based upon a study of eighty-eight cases observed and operated upon at the Mt. Sinai Hospital New York.

Death occurring within three days after the operation are due almost entirely to shock. Of the sixteen patients who died of shock twelve were 50 years of age or older. Patients with shock do not recuperate from the operation and are desperately sick until death.

Patients dying from generalized peritonitis recover from the operation and operative shock and seem to be progressing well for several days before the appearance of the signs of peritonitis. Usually the younger patients succumb to this condition. In the cases reviewed only two of the seven patients dying from peritonitis were over 50 years of age.

Subphrenic or liver abscess is another condition that may cause death. In the author's opinion most subphrenic abscesses are liver abscesses that have perforated. Liver abscess may be caused by infection carried by the portal vein or by direct extension or due to suppurative cholangitis. In the cases reviewed there were only two deaths from this condition.

In the total number of eighty-eight cases reviewed there were twenty-seven deaths a mortality of 31 per cent.

JOHN J. MALONEY, M.D.

B. How D. C. and Henderon F. F. Benign Tumors of the Stomach 1 5 19 19 7 18 v 7 13

The authors review a series of fifty-eight cases of benign tumors of the stomach which have come to operation at the Mayo Clinic up to the present time. Thirty-five of the patients were males. The average was 46 years the youngest patient was 8 years old and the oldest 69 years. Sixty-nine per cent of the tumors were in the pylorus 26 per cent in the body of the stomach and 5 per cent in the cardia.

The tumors varied in size from 6 mm to one weighing 1,000 gm. a dermoid cyst filling the lesser

peritoneal cavity. In forty-five of the fifty-eight cases the tumor were single and in thirteen including the four cases of polyposis they were multiple. Malignant degeneration was found in only two of the tumors one a polyp and the other a pedunculated adenoma. Ulceration could be demonstrated in 17 per cent.

The most frequent and the most important sign of benign tumor of the stomach was anemia. This was usually of the secondary type but in some long-standing cases it had progressed to a point suggestive of the primary type. In a number of cases gross hemorrhage resulted in acute secondary anemia. Pyloric obstruction usually intermittent occurred in 10 per cent of the cases. The tumors were usually attached to the posterior wall and either because of a long pedicle or a redundant mucosa could be invaginated through the pyloric orifice. A careful consideration of the type of indigestion found in these cases did not reveal any group of signs and symptoms on which a diagnosis of benign tumor could be made.

The only physical findings suggestive of benign tumor occurred in cases in which the tumor was large enough to be palpated. This was possible in only eight but in none of these was a clinical diagnosis of benign tumor made independently of the roentgenological examination. The differential diagnosis was dependent almost entirely on fluoroscopic examination. Seventy-five per cent of the patients had been examined with the roentgen ray. In 96 per cent of these the roentgenogram revealed the lesion and in 48 per cent the lesion was reported to be a benign tumor.

In six cases of fibroadenomatous polyps in which there was no associated disease the chief sign was anemia. In five the anemia was marked the hemoglobin in one case being reduced to 32 per cent and the erythrocyte count to 1,480,000. The blood findings in three of the cases were suggestive of pernicious anemia. In one case the color index was 1+ the hands and feet were numb and a diagnosis of early combined sclerosis was made. Following the removal of multiple polyps in this case the symptoms disappeared and the blood findings improved.

In all six of the cases of polyps uncomplicated by other disease no free hydrochloric acid was found. This was additional confusing evidence particularly in the differentiation of pernicious anemia gastric carcinoma and benign tumor. In five of the six cases the polyps were pedunculated. One polyp which was near the pylorus had become invaginated 7.5 cm into the duodenum. Another was shown to have undergone malignant degeneration. In five of the six cases in which anemia was associated with the polyps a preoperative diagnosis was made from the roentgenogram. In one case the roentgenogram was negative and when the polyp was excised it measured only 11 by 8 mm.

One patient who had an adenoma of the stomach also showed a severe degree of anemia and had been



tion without general anesthesia. When the latter becomes necessary it need not be deep or prolonged. Lavage is carried out preliminary to the operation and about half an hour before 4 gr of morphine and 1/150 gr of atropine are given. Exploration can then be satisfactorily carried out and if resection is found possible an ethylene oxygen ether combination may be administered. In some respects this is the safest anesthetic for such cases.

A thorough exploration should be made particularly of the pelvic peritoneum and liver. Usually examination of the stomach and the adjacent lymph nodes promptly reveals whether or not resection is advisable. It cannot be too frequently emphasized that fixation of the tumor and extensive enlargement of the lymph nodes do not necessarily mean that the disease is inoperable or incurable; such conditions may be due to inflammatory processes. In fact, some of the most striking cures have been obtained in this type of case. Although operations for extensive and incurable cancer are to be detested, it is probable that until better methods of surgery are devised for the cure of cancer, unreasonable attempts to remove the growth will be made in advanced cases simply because removal offers the only possible chance of cure. Resection of the growth is occasionally permissible for palliation only, that is, when it is known that metastasis exists. Sometimes extremely large tumors which from every point of view appear to be irremovable are found to be suitable for resection and their removal results in a cure. This is true particularly of the colloid type of cancer in which the disease is sharply demarcated. If resection appears to be indicated, the details of the operation are carried out according to various methods.

The author describes the technique of partial gastrectomy particularly extensive resection in which gastro-intestinal continuity is restored by end to side gastrojejunostomy with enteroanastomosis.

During 1926 partial gastrectomy was performed 120 times in the Mayo Clinic for malignant disease of the stomach. There were nine deaths, a mortality rate of 7.5 per cent.

Maclean, N. J. Some Problems in Intestinal Surgery. *J. L.* 1927, 17, 17.

Maclean states that no revolutionary change have been made in abdominal surgery since the days of Lister. Multiple stage resection of the intestines was advocated by Smith in 1897. The two stage colectomy for carcinoma of the sigmoid was popularized by Mikulicz.

Many pathological lesions call for resection of the large or small bowel. Associated with these lesions there is an obstruction of varying degree. Resection of the intestine is followed by temporary ileus at the site of anastomosis. These conditions have a direct influence upon the surgical prognosis. Intestinal cases may be grouped as follows:

#### A. Acute obstructive lesions

1. Small bowel (a) kinks and strangulations relatively common, neoplasms relatively rare.
2. Large bowel (a) twists and strangulations relatively rare, (b) neoplasms relatively common.

#### B. Chronic obstructive lesions

1. Small bowel relatively rare.
- Large bowel relatively common.

#### C. Non obstructive lesions

1. Small bowel (a) ulcerations perforations (b) early neoplasms.
2. Large bowel (a) ulcerations perforations etc. (b) neoplasms in early stages.

The early stages of acute intestinal obstruction from mechanical causes demand immediate laparotomy. Between the early and the late stages the problem becomes more involved. The distended intestine should be drained by a glass tube or an enterostomy should be performed to eliminate the gas and toxic material. In all except very early cases an enterostomy should be done in addition to the use of other measures to relieve the obstruction. In the late stages of obstruction in either the large or the small bowel drainage proximal to the obstructing lesion is essential. Occasionally exploration may be delayed until the distention has been relieved.

Late obstruction of the small bowel should be relieved by enterostomy under local anesthesia through a muscle splitting incision high on the left side (jejunostomy). Obstruction in the right colon is best relieved by ileostomy.

Cancer is the surgical problem of the colon. In nine of every ten cases of colonic obstruction the condition is due to carcinoma. In the treatment of obstructive growths of the colon drainage preliminary to resection is a fundamental principle. A debatable point in the surgery of the colon is the advisability of performing the operation in one or two stages. The author believes that a two stage operation gives the best prognosis, as it is associated with less shock than immediate resection. Preventing soiling of the peritoneum eliminates the possibility of a leak with resulting peritonitis. Affords early drainage of the proximal bowel and has a lower mortality.

JOHN W. NICHOLS, M.D.

#### Coleman, E. P. The Use of Hypertonic Saline Solution in Acute Intestinal Obstruction. *J. A. M. A.* 1927, 123, 1, 66.

Coleman reports upon thirty eight cases of acute intestinal obstruction seen by him in a period of six years beginning January 1921—twenty cases in the first three years and eighteen in the second three years. In December 1923 Coleman heard Orr read a paper on experimental intestinal obstruction in the dog. Orr correlated that the fall in blood chlorides which generally occurs in this condition is closely associated with the toxemia which is the cause of death and that the use of hypertonic

treated for pernicious anemia. All examinations at the Clinic showed the hemoglobin to be 27 per cent and the erythrocyte count 3,080,000. Five of the group of myomata, fibromata and sarcomata were repositioned for varying degrees of obstruction, in one which was 5 cm. in diameter had herniated through into the duodenum for a distance of 12.5 cm. producing an intussusception. One tumor which was 3 cm. in diameter was also pedunculated and a herniated through the pylorus. One which was only 1.5 cm. in diameter produced almost complete obstruction. The outstanding features of the group of four hamangiomata were the previous occurrence of melena in three cases and of severe hamangiomata in one. One case of polyposis was associated with glossitis and had been diagnosed as pernicious anemia at the Clinic nine months before polyposis was diagnosed. In three of the four cases in this group there was absence of free hydrochloric acid. In two of the cases nearly the entire area of the stomach was involved. One dermoid cyst weighing 1,000 gm. was removed with a portion of the posterior wall of the stomach.

In the fifty-eight cases of benign tumor of the stomach encountered at operation the tumor was removed in fifty-seven and exploratory alone was carried out in one case. A case of polyposis involving the whole stomach. The situation of the tumor determined the best method of approach. The procedure used most frequently was transgastric excision through an incision in the anterior wall and division of the pedicle with the cautery. In the larger tumors the possibility of malignant degeneration made partial gastrectomy a feasible.

In the cases of uncomplicated benign tumors there was no operative mortality. In a case in which the primary condition was carcinoma of the stomach death from bronchopneumonia occurred six days after the operation.

#### Moore A B. Lesion Roentgenologically Simulating Gastric Cancer. *Am J Surg* 72: 234

In the x-ray examination of the stomach the greater danger is not that the roentgenologist will overlook gastric cancer but that he will mistake some other condition for cancer. In cancer the filling defect is constant in situation usually irregular in outline an lobularly delineated. It persists unchanged after manipulation or after the giving of antispasmodics and if it is in a region accessible to palpation it corresponds to a palpable mass. If any one of these characteristics is lacking the diagnosis of cancer is open to doubt.

Cas in the colon is a well known cause of defects along the greater curvature. In such cases no mass can be felt and the transposition of the bowel is visible. Deformity of the stomach caused by pressure against the spine is deceptive if a diagnosis is attempted on the basis of films alone. Advanced pregnancy and free fluid or a large tumor in the abdomen may distort the stomach. Diaphragmatic hernia of the stomach may produce hour glass

deformity simulating that of cancer. Gastroptosis gives rise to annoying simulants. When gastroptosis is suspected a special examination should be made after the administration of bella donna to full effect.

Extrahepatic tumors may deform the stomach but in such cases the rugae are preserved whereas in cancer they are obliterated. Benign new growths produce central defects which are likely to be rounded and are often multiple. Syphilis of the stomach imitates cancer but the general condition is usually good and the patient is apt to be under the cancer age.

#### Hallour D C. The Technique of Partial Gastrectomy for Cancer of the Stomach. *S & Gy* 60: 1 1917 4: 657

The author discusses the various types of partial gastrectomy for cancer of the stomach. These procedures are of two types, one which is usually called a modification of the Billroth I method and the other a modification of the Billroth II method.

The safety of operation for cancer depends partly on the selection of the patients for operation but a selection based on operative risk will not accomplish the greatest good for the greatest number. The fundamental principle in the surgical treatment of cancer of the stomach is that every patient is entitled to an exploratory unless the disease can be proved incurable otherwise. This means that unless metastases can be demonstrated or unless the fluoroscopic results show such definite involvement of the earliest that both the experienced roentgenologist and the clinician realize that the lesion is irremovable exploration should be carried out. The observance of such a principle frequently results in resection of the growth when the patient is in extremely serious condition.

The safety of partial gastrectomy for cancer of the stomach does not depend alone on the manner in which the operation is performed. Since many of the patients are poor surgical risks no effort should be spared to get them in the best possible condition for operation. Such a progressive disease does not permit prolonged efforts to improve the general condition but most gratifying results follow proper pre-operative measures carried out for a reasonable length of time especially if resection is a complication.

Patients with retention should be sent to a hospital and treated by the age of the stomach and the administration of fluids until the dehydration has been compensated. In this routine extraordinary improvement has been effected in a few days and the mortality has been definitely lowered. It is possible that patients with marked anemia are benefited by transfusion although it is difficult to bring about any pronounced change in the hemoglobin percentage.

Regional block anesthesia of the abdominal wall induced as a routine procedure will permit the performance of a considerable part of the opera-



the mesentery at the site of the torsion and to the fact that adhesion of the small intestine at this point has been frequently observed. The superiority of the Mikulicz operation over immediate anastomosis especially for volvulus is emphasized.

ALBERT F. DE GROAT, M.D.

Kantor J. L. Colon Studies IV. The Roentgen Diagnosis of Colitis (The Irritable Colon). *Am J R* 16 of 1927 xvi 4.

Crane A. W. A Roentgenological Sign of Mucous Colitis. *Am J Roent* 1927 21 46.

KANTOR uses the term colitis to describe abnormal irritability of the colon. This may have an organic basis such as infection and ulceration or may be a purely transient functional phenomenon. During roentgen ray examination it is readily recognized and when limited its location becomes apparent immediately.

If possible the colon should be studied following both a barium meal and a barium enema. More information is obtained with the barium meal than with the enema. The nine hour observation period is best. Change are noted in both the motor function and the form of the colon. The characteristic effect on the motor mechanism is to hasten the time of transit of the colonic contents. Usually the barium reaches the splenic flexure in six hours and the rectum in nine hours. In twenty four hours the colon is empty. Another fairly constant finding is stasis in the terminal ileum due to spasm of the ileocecal sphincter.

The haustra become irregular in size shape and space or may disappear entirely. Localized areas of irritability may produce thin streaks, broader bands (feathering) or even pseudo-filling defects. The presence of gas and mucus is also of diagnostic value. With the enema the most dependable signs are very rapid filling, a narrow lumen with deep cutting haustration and the discomfort caused by a small enema.

CRANE points out that mucous colitis while manifesting itself in the colon is primarily a disease of the nervous system. Its importance lies in the fact that it is a cause of abdominal pain. As a cause of abdominal pain it ranks fifth after (1) the dyspepsias (2) peptic ulcer (3) chronic appendicitis and (4) gall stones.

In many of his cases of mucous colitis Crane has noted a long slender opaque cord usually in the left colon. To this he has given the name string sign. It has been most frequently noted twenty four hours after the ingestion of the barium. A string connecting two parts of a normally filled colon may be considered diagnostic if the portion of the colon occupied by the string can be shown at some other time to have a normal contour and caliber. This sign seems to be a product of three factors: (1) the peculiar mucoid material of mucous colitis (2) spasticity of a considerable portion of the colon and (3) some sort of peristaltic effort which gives length and thinness to the string.

CHARLES H. HAZARD, M.D.

Jones D. F. Carcinoma of the Rectum. *J Miss* 30 *St. Louis* 1927 xxiv 179.

About 12 per cent of all carcinomata occur in the intestinal tract and of intestinal carcinomata 65 per cent occur in the rectum. Improvement in the results of treatment depends upon early recognition of the condition and early operation. The author believes that many of the symptoms of rectal cancer mentioned in the textbooks are far advanced symptoms. The only early signs are a change in the normal bowel habit and the presence of blood in the stools. Hemorrhoids, polyps, fissures and ulcerative colitis must be ruled out.

Cancer of the rectum occurs most often between the fiftieth and sixtieth years of age but of 913 patients with this condition three were under 18 years of age and thirty two were under 30 years.

Weight loss, pencil or ribbon shaped stools and alternating periods of constipation and diarrhoea are usually late symptoms and have little value in the diagnosis.

Blood in the stool or a change in the patient's bowel habit or sensations should always lead to a digital and proctoscopic examination. These procedures will establish the diagnosis of rectal cancer. An X-ray examination is unnecessary.

Miles work on the lymphatic involvement in cancer of the rectum determined the type of operation best suited for the removal of cancer of the rectum anatomically. The abdominoperineal operation is anatomically ideal. It is performed usually in two stages and permits removal of the higher growths. For the poor risk the author employs the two stage operation of Lockhart Mummery. In most of the difficult operations a permanent colostomy is necessary. This is often a great inconvenience to all concerned especially the patient. Restoration of the continuity of the bowel is a poor operation and is invariably followed by early recurrence. A colostomy gives the best possible chance for life and a permanent cure. The attention given by the patient to the condition of his bowels is far more important than any type of special colostomy. Radium treatment has proved very disappointing in cancer of the rectum.

The author compares his results in a series of 178 combined abdominoperineal operations with those of the more recent posterior excision operation of Lockhart Mummery and those obtained in St. Mark's Hospital, London. In Jones' cases the operability was 65 per cent and the mortality 23 per cent. The percentage of three year cures (deaths excluded) was 69 and the percentage of five year cures (deaths excluded) 53 per cent.

JONAS W. HAZARD, M.D.

Brindley G. V. The Cautery Excision of the Cancer of Rectum. *South M J* 1927 xx 240.

In the Scott and White Hospital, Temple, Texas, the use of the cautery has been gradually extended.

The operation for cancer of the rectum is performed in two stages. The first stage is a colostomy with

salt solution intravenously or subcutaneously is of great value as it causes the blood chlorides to return to normal and seems also to combat the toxæmia.

In Coleman's first series of twenty cases which were treated before Orr's report the operative mortality was 50 per cent. In the second series of eighteen cases in which hypertonic salt solution was employed the operative mortality was reduced to 11.1 per cent. Coleman therefore concludes that the free use of hypertonic salt solution is effective in neutralizing the toxæmia of intestinal obstruction. It enables the toxic patient to recover from the operation whereas without it he would be quite apt to become more toxic and die within a few hours after relief of the obstruction.

ARTUR L. SIKOFFLER M.D.

WILKIE D. P. D. Chronic Duodenal Ileus. *Am J Surg* 1917, 13: 443.

Any abnormality of the mesentery and any factor which allows an undue drag on the mesentery may lead to duodenal compression. Chronic inflammatory fibrous thickening of the root of the mesentery, tuberculous adenitis and progressive or retrograde infiltration of the mesenteric pedicle by malignant disease are causes of chronic duodenal ileus. Whatever the obstructive factor, dilatation of the first three parts of the duodenum is the striking feature of the condition. The pylorus is almost always widely patent and the stomach dilated. There may be coincident ulceration of the stomach or duodenum.

The symptoms are not clear cut and may be confused with those of other conditions occurring in the epigastric region. On physical examination the stomach is found to be low and often dilated and splashing and definite epigastric fullness may be visible.

Four hours after a barium meal a fairly characteristic roentgen ray picture shows a saucer-like residue in the dilated first and third portions of the duodenum.

Duodenal ileus is most liable to be confused with a gall bladder condition or gastric or duodenal ulcer.

In the common type of the condition in which visceropexy is the primary cause conservative and postural treatment will relieve or cure a considerable number of cases and postural treatment is of great benefit. In operative cases duodenojejunostomy is the operation of choice. In the cases in which the duodenum was found at operation to be obviously constricted by some more or less gross anatomic abnormality or pathological process in the root of the mesentery, the results of a short-circuiting operation were excellent. When the duodenum was found dilated but no very obvious cause was visible the results of the short-circuiting operation were most uncertain.

Dilatation of the duodenum may apparently be present without any detectable mechanical obstruction. In such cases the drainage operation is

relatively ineffective. In a few cases the sign of duodenal ileus postoperative physical and especially postural treatment is essential for complete and lasting relief. HERMAN H. HUBER M.D.

Winkelbauer A. Studies on the Prevention of Postoperative Peptic Ulcer. (*Stellen über die Verhütung des Ulcus postoperativum*) J. h. f. kl. Ch. 1916, 6: 649.

A postoperative jejunal ulcer cannot be produced merely by acidification of the lower sections of the intestine. If the hydrochloric acid has anything to do with the genesis of the lesion, its rôle must not be overestimated.

The exclusion of the duodenum as it is done in the Billroth II method probably carries with it certain dangers which may be explained by the fact that the duodenum is an important regulating center for the secretion of bile and pancreatic juice. The portion of the duodenum lying caudad to the papilla of Vater is more resistant to the formation of ulcers. Whereas in experiments on dogs major exclusion of the duodenum and anastomosis of the jejunum almost invariably leads to the formation of ulcer, the latter can be prevented when the other experimental conditions remain constant. This portion of the duodenum is used for the anastomosis.

In the development of peptic ulcer of the jejunum the musculature of the intestinal wall is involved. The findings of Krehl indicate that if this is removed no ulcer will result even under conditions which would otherwise produce such a lesion. The application of the Krehl method of removal of the musculature has served to a certain extent to explain the rôle of the musculature. Experiments show that the formation of ulcer may be prevented by the prevention of spasms. Efforts must now be directed toward a practical application of this knowledge—to the inhibition of spasm at the threatened sites. The technique described by Krehl appears to be impracticable in clinical cases because of the different anatomical relations hips in man but it opens up the prospect of a method of prophylaxis. REISCHKE (7).

D'Aulaires F. G. and Lecien P. Two Cases of Volvulus of the Ileocolic Colon Treated by Immediate Resection. (*Revue des maladies de l'appareil digestif*) B. H. Soc. Méd. 1917, 9: 357.

This is the report of two cases of typical volvulus of the sigmoid colon treated by the Mikulicz-Paul operation. One patient died of acute obstruction of the small bowel three months after closure of the colostomy and apparent cure. At operation for relief of the obstruction it was found that the small intestine had become adherent to the base of the mesocolon which was the site of a fibrinous inflammation. The other patient made an entirely normal recovery.

In the discussion of the two cases attention is called to the frequency of inflammatory changes in

**bilirubinæmia** This form of jaundice is the result of the activity of the reticulo-endothelial cell system—the spleen and Kupffer cells of the liver. It is therefore essential to distinguish two entirely different types of jaundice: (1) a jaundice due to bilirubin plus bile salts and (2) a jaundice due to bilirubin alone.

The van den Bergh test is a means of determining which type of jaundice is present. The immediate reaction is attributed to bile which has passed through the polygonal liver cells and the delayed reaction to bile formed independently of the liver cell. It has been shown that bilirubin is formed by Kupffer cells in the liver and the reticular cells of the spleen and not by the hepatic cell itself.

Theoretically, jaundice may arise from obstruction of the outlet of the bile capillaries after the changed bilirubin has passed through the polygonal cells of the liver or it may occur by reason of absorption into the vascular capillaries or lymphatics of the liver and into the general circulation of bilirubin that has not passed through the polygonal cells. The former would be the elimination of an altered bilirubin with bile salts and subsequent absorption from obstruction and the latter the absorption of an unaltered bile pigment without bile salts. This conception explains the two reactions of van den Bergh's test.

It seems possible therefore to predicate two different kinds of bilirubin. It appears that there is some bilirubin in the blood stream at all times. A portion of this is removed by the liver cells and excreted in the bile. This bilirubin is possibly of no use to the organism and represents a waste product in the process of excretion for by its concentration or some slight change in its chemical characteristic give the direct reaction of van den Bergh. The remaining moiety is evidently a useful product consumed by the organism and therefore not with drawn from the blood stream by the liver cells. It is dissimilar from the other in concentration or chemical character and ordinarily gives the indirect reaction of van den Bergh.

The bilirubin that occurs in frank obstructive jaundice or in disease of the liver cells has a normal threshold of 1:40,000 whereas the bilirubin of hæmolytic jaundice has a much higher threshold of renal elimination and does not appear in the urine as a bilirubinuria.

The intensity of jaundice is revealed best by a determination of the icterus index of the blood serum by the method of Stetten. As this is a measure of only the degree of the jaundice it must be combined with van den Bergh's test to determine the type of the jaundice.

The authors have found that the cholesterol content of the blood is increased in obstructive jaundice whereas it is unchanged in jaundice of the hæmolytic type.

Acute atarrhal jaundice the jaundice of pneumonia acute articular rheumatism sepsis and

pronounced toxic conditions is of a systemic nature and in such functional or organic change in the liver cell. Pernicious anemia and icterus neonatorum are types of latent hæmolytic jaundice. In complete obstructive jaundice there can be no reabsorption of urobilin from the intestine and hence urobilin does not appear in the urine. When the obstruction is only partial some of the bile is delivered into the intestinal tract and the occurrence of any slight functional disturbance of the liver cell permits the delivery of urobilin into the systemic circulation and its subsequent appearance in the urine.

WILLIAM J. PICKETT, M.D.

Chandler L. R. and Newell R. R. Cholecystography and Pathological Changes in the Gall Bladder. Correlation as Observed in a Study of Fifty Consecutive Cases. *J. T. M.* 133: 1927. 13: 1530.

The authors review a series of fifty cases in which cholecystograms were made and operation was performed. In all there was clinical evidence of cholecystitis or stones.

Correlation of the operative findings with the cholecystographic diagnosis seemed to show that a normal cholecystogram does not necessarily mean a normal gall bladder; that failure of the gall bladder to become visible after the intravenous administration of the dye may occur when the mucosa is nearly normal and gall stones are absent; that smoothness or irregularity of the gall bladder shadow does not correlate very well with the absence or presence of gall bladder adhesions; and that failure of the gall bladder to empty after a fatty meal is probably a sign of gall bladder disease.

J. COBURN GROVE, M.D.

Jones N. W. and Joyce T. M. Further Remarks on Infection of the Gall Bladder in Relation to Chronic (Pernicious?) Anæmia. *Am. J. M. Sc.* 19: 7: 131, 132.

In an article written three years ago on infection of the gall bladder in relation to pernicious anemia the authors discussed thirteen cases of chronic anemia with some or all of the characteristics of idiopathic progressive anemia and with chronic infection of the gall bladder. The purpose of this report is to summarize the subsequent history of those patients upon whom a cholecystectomy was performed and to add to the series nine new cases five of which are placed in the borderline group of pernicious anemia and four of which are considered cases of true pernicious anemia.

In all of these cases the typical blood picture of various grades of chronic pernicious anemia was present along with such physical signs as lemon tinting of the skin, weakness, glossitis and paræsthesia. The diagnosis of gall bladder disease was based upon roentgenological findings and verified by the pathologist at the time of operation.

An attempt was made to cause chronic anemia in dog by producing a chronic infection of the

abdominal exploration. A few days later the second operation is performed under transsacral block. The cautery is used throughout except for the removal of the sacrum which is done with bone biting forceps.

The author has used this method in nine cases. He has found that the operation can be performed with ease and dispatch and a surprisingly small amount of hemorrhage. A line of cleavage seems to be obtained more readily than in other procedures and because of the small amount of hemorrhage the field is better visualized. The consequently more accurate dissection makes possible the removal of more extensive growths with less shock and a lower mortality. The chief advantages of the procedure however are that it decreases the chances of recurrence and increases the percentage of permanent cures.

I. A. W. SWEET, M.D.

Castellani A. Pruritus Ani and Pruritus Vulvae of Fungal Origin. *New Orleans Medical Journal* 1917, 19: 215.

Pruritus of the anus and vulva of fungal origin is a distinct clinical entity of fairly common occurrence. It is caused usually by the fungi of the genus *Cryptosporidium*. This is the same organism which causes the ordinary pruritus inguinis and interdigitalis pedum.

The symptoms are those of a severe pruritus recurring at intervals. Inspection of the anoporeal region may reveal nothing at all except signs of scratching, but usually on careful examination minute red slightly raised infiltrated patches may be seen.

The diagnosis of fungal pruritus ani or vulvae cannot be made definitely unless the *Cryptosporidium* or trichophyton fungi are found with the microscope. Bacteria also are present as a rule and no doubt play a part in the production of a secondary dermatitis. Yeast like fungi may be present but do not produce a pruritus. Abundant bacterial flora may make it very difficult to isolate the typical fungi.

The course of the condition is chronic. Periods of great improvement and apparent cure may alternate with periods of severe recrudescence.

Uncomplicated cases are best treated with an ointment made of sulphur and salicylic acid. It is sometimes necessary to add phenol. In some cases chrysarobin has produced striking results. For chronic cases X-ray treatment is recommended.

CYRIL J. GLASPEL, M.D.

## LIVER, GALL BLADDER, PANCREAS AND SPLEEN

Carrère J. Studies of the Physiology of the Biliary Passages (Études de physiologie des voies biliaires). *Revue générale de médecine* 1916, 11: 10.

This article is based upon both experimental and clinical studies of the physiopathology of the biliary

passages and contains three excellent illustrations. The author concludes that alimentary stimulation of the biliary system acts reflexly and that the point of origin of the stimuli is in the duodenal mucosa. That these reflexes act directly upon the biliary system is best demonstrated by the reflex evacuation of the gall bladder made possible by the use of tetraiodophenolphthalein. The effect of these reflexes upon the excretion of bile may be determined also by the use of the duodenal tube.

When the same substances are employed in the same dosage uniform reflexes are produced. In this way it has been possible to determine the vesicular rhythm following the use of a concentrated glucose solution. When substances of different kinds and in different quantities are used and when they act over a longer period of time there is no rhythm and there may be either evacuation or complete filling of the gall bladder depending strictly upon the kind and the amount of alimentation. When glucose solution is used there is a functional relationship between biliary function and glycogenic function.

The author suggests that in the study of gall bladder function concentrated solutions of glucose be employed and the customary magnesium sulphate solution be discarded. Tetraiodophenolphthalein should then be used to obtain accurate data on the emptying time of the gall bladder and the duodenal tube employed for the physical chemical and bacteriological study of the bile.

WILLIAM R. MEeker, M.D.

Heyd C. G. Killian J. A. and Klemperer P. The Pathogenesis of Jaundice. *Surgical and Obstetrical* 1917, 11: 439.

The normal bilirubin content of the blood is about 1 part of bilirubin to 400,000 to 600,000 parts of blood serum. This may be raised to 1 part in 40,000 parts of blood serum before jaundice occurs.

Jaundice may develop following intrahepatic or extrahepatic obstruction of the biliary passages, degeneration or dysfunction of hepatic cells, or the excessive production of bilirubin by the reticuloendothelial cell system, particularly the reticular cells of the spleen and the Kupfer cells of the liver. Bilirubin may be formed by the cells of the reticuloendothelial system without any activity upon the part of the liver parenchyma. Bile salts however are the specific product of the liver parenchyma and the production of bilirubin together with bile salts is a function limited to the liver. Therefore the presence of bile pigments in the tissues and body fluids in association with bile salts indicates mechanical obstruction of the bile ducts or dysfunction of the liver cells with or without obstruction.

As these two types of jaundice are essentially hepatic forms it follows that the presence of bilirubin in the tissues and body fluids without the presence of bile salts—a dissipated jaundice—indicates a pure pigmentary accumulation in a

the gall bladder and ducts after the feeding of a barium meal. No gross evidence of infection of the liver was seen at necropsy on these animals but in 61 per cent the gall bladder and common duct showed evidence of infection. The inflammation was usually of a low grade and apparently was not harmful to the animal. **LEO M. ZIMMERMAN M.D.**

**Elman R. and McCaughan J. M.** On the Collection of the Entire External Secretion of the Pancreas under Sterile Conditions and the Fatal Effect of Total Loss of Pancreatic Juice. *J. E. P. Med.* 927 xlv 561

The general objection to all open fistulae for the collection of pancreatic juice is the impossibility of obtaining sterile secretions thereby. As infection leads to marked alteration of the properties of pancreatic juice, the authors adapted for the collection of this juice the method of Rous and McMaster for the collection of bile under sterile conditions.

After dissection of the head of the pancreas from the duodenum a cannula was placed in the severed end of the pancreatic duct and another in the gall bladder. The two cannulae were then connected with rubber tubing in which a T was placed so that with the opening or closing of the petcock the pancreatic juice could be either collected in a sterile bag or allowed to return to the intestine through the gall bladder.

When obstruction or infection did not occur the secretion continued to flow profusely and after from five to eight days the animals died with marked asthenia. The secretion was odorless, slightly opalescent and decidedly alkaline and in quantity seemed to bear no relation to food taking. The prompt restoration of motion to animals to practically normal when the secretion was returned to the duodenum suggests that the pancreatic juice contains a substance which is necessary to life.

**GEORGE V. COLLETT M.D.**

**Krumpholtz E. B.** The Incidence and Nature of Splenic Neoplasms With a Report on Forty Recent Cases. *1. Cl. M. d.* 197 833

In 6500 autopsies performed at the Philadelphia General Hospital during the past six years forty neoplasms of the spleen were encountered in a total of 93 primary and 1234 secondary tumors. Of these forty splenic neoplasms six were primary and thirty-four were secondary (64 and 27 per cent respectively of the total number of primary and secondary tumors). Two of the primary tumors were benign (angiomas) and four were sarcomas (one a lymphosarcoma). Of the thirty-four secondary tumors twelve were sarcomas, one was a myeloma and twenty-one were carcinomas. Of the eleven sarcomas seven were primary in the body of the spleen, three in the pancreas, two in the prostate and one each in the esophagus, appendix, lip and penis.

The relative rarity of splenic neoplasms is accounted for in part by the antagonism supposedly

existing between splenic tissue and tumors. The non infrequent finding in the spleen of tumor cells in sinuses but not as metastases in the pulp and the discovery of circumscribed fibrous nodules (fibrosed metastases?) in persons with cancer who show no signs of tuberculosis, syphilis or the causes of arterial thrombosis suggest that the spleen is peculiarly antagonistic to malignant tumors. The rarity of splenic metastases has been attributed also to such factors as the limitation of lymphatics to the subcapsular region, the sharp angle of the origin of the splenic artery and the effect of splenic pulsation in preventing the lodgment of metastatic cells.

In none of the cases reviewed did the splenic neoplasm cause noticeable symptoms. Therefore the condition was not diagnosed or treated.

For primary tumors excision is obviously the proper treatment. Not infrequently it has been followed by an apparent cure. For secondary tumors palliative measures are indicated.

**STANLEY J. SEEGER M.D.**

## MISCELLANEOUS

**Fraser J.** The Involuntary Nervous System in Relation to Abdominal Disease. *S. R. G. J.* 608 x 7 xlv 39

Disturbances of the hollow abdominal viscera may be due to errors of the involuntary nervous system of the organs affected. The involuntary nervous system is usually divided by the physiologist and anatomist into the sympathetic and the parasympathetic systems. These two systems present both an anatomical and a physiological difference and their respective functions are sharply contrasted throughout.

In certain parts of the enteric system a single type of supply, either sympathetic or parasympathetic, is provided. The functions of the two divisions are antagonistic but in health the coordinated action of the two types of function is very carefully balanced. This is especially noticeable in the sphincters of the alimentary tract.

The esophagus and cardiac portion of the stomach are supplied by the parasympathetic system while the pyloric half of the stomach is supplied by the sympathetic system. From the pylorus onward as far as the ileocecal region there is a combined distribution of sympathetic and parasympathetic elements. The large intestine up to the pelvic colon has a purely sympathetic distribution while the rectum has a combined supply. The pylorus, the ileocecal junction and the lower part of the large bowel are the areas where the two types of supply meet or overlap.

There are four types of derangement of normal enteric functions: (1) abnormal contraction (spasm), (2) persistence of contraction (achalasia), (3) exertion of inhibition on relaxation (atony), (4) an irregularity of co-ordination between contraction and relaxation (arrhythmia). There are certain local muscular hypertrophies of an obscure origin

biliary tract by means of organisms obtained culturally from the gall bladders and livers of some of the patients but the results are negative.

The authors believe that there is a definite relationship between infection of the biliary tract and pernicious anemia—not that the former is merely a focus of infection but that there is a special infection operating in a special way from a special site. It is not impossible that such an infection may cause anemia through changes in the cholesterol content of the bile.

In cases of definite pernicious anemia the clinical symptoms improve for a time following cholecystectomy but the pernicious type of the blood does not disappear. In mild cases or those of the borderline group the improvement is more pronounced and in five of the even cases reported has thus far been permanent. Of all the symptoms the anemia has been the last to disappear. There has been no return of previous relapses. Complete recovery in marked cases may be hindered by irreparable damage of the hematopoietic centers of the bone marrow.

The article is concluded with the following statements:

1. In every case of pernicious anemia with which we have personally worked during the time of this study a chronic infection of the gall bladder has been positively demonstrated.

2. A small group of cases which resembled mild pernicious anemia possessed the same type of biliary infection and upon its removal the patients were restored to fairly normal health.

MARSHALL DAYTON, M.D.

Mueller W. Report of a Case of Acute Cholecystitis in a Child 4 Years of Age (E. N. Beobachtungen über Cholezystitis bei in m. J. ehng. n. Kinde). Z. Verh. f. Ch. 1901 3092.

Cholecystitis is rare in children. Statistics show that when it does occur in the child the inflammation is more often associated with stone formation than not. Mueller reports the case of a boy 4 years of age who was suddenly seized with abdominal pain and twelve days later had another attack of severe pain in the right side of the abdomen associated with vomiting and pain in both knees and thigh and the right arm. Only when the patient was under anesthesia was it possible to feel a longitudinal area of resistance extending from the costal arch down to a finger's breadth below the umbilicus.

Laparotomy revealed a yellowish serous exudate in the abdominal cavity a healthy appendix and a tensely distended gall bladder. The gall bladder was removed. Its contents were sterile. Histological examination showed acute suppurative cholecystitis.

PLUM, Z.

Spunier R. G. and Whitaker L. R. End Results of Cholecystostomy as Shown by the Cholecystogram. Surg. & Obst. 97 21 463.

In the investigation reported in this article cholecystograms were made following the intra-

venous injection of sodium tetraiodophenolphthalein in twelve cases in which the gall bladder had been drained from twenty-five days to nineteen years previously. In none of the twelve cases was the gall bladder found normal. Four showed a recurrence of calculi and two a marked thickening and sclerosis of the organ. In six cases not operated upon the cholecystograms showed evidence of biliary disease by a shadow abnormally faint or abnormally large or the absence of contraction of the organ following the ingestion of food.

Experimental work on dogs was done by the authors to determine what part of the pathological process is responsible for alterations in the cholecystogram. In five dogs the gall bladder was opened and curetted. In two of these it was then drained with a rubber catheter and in the three others it was closed. In a sixth the entire mucous membrane was removed by blunt dissection and the gall bladder closed. Beginning forty-eight hours after the operation cholecystograms were made of all six animals every two or three days for a week or more and at longer intervals over a period of a month.

The first shadow was noted four days later and disappeared twelve hours after the ingestion of a meal rich in fat although it did not become appreciably smaller during the emptying. At necropsy the gall bladder was found somewhat shrunken and the mucous membrane showed fibrosis with mononuclear infiltration of the submucosa. In one case a month elapsed before a positive cystogram was obtained and at cholecystectomy the gall bladder was found in a mass of adhesions and its wall was between 2 and 3 mm. thick. In the cases of the two animals whose gall bladders were drained shadows appeared after the tubes had sought out at the end of seven days. In the case of the animal in which the mucosa was removed no positive cystogram was obtained at any time.

Slight mechanical injury to the wall of the gall bladder delays the emptying after the ingestion of food. In severe injury causing fibrosis the contraction is marked.

The authors conclude that drainage of a diseased gall bladder with the expectation that it will regain its normal function is not only futile but endangers the patient's health.

CHESTER L. CRAWFORD, M.D.

Trautmann, M. Robbin H. J. and Stewart C. C. An Experimental Study of the Operation of Cholecystenterostomy. Surg. Gynec. & Obst. 197 21 6.

In a series of dogs subjected to cholecystostomy and cholecystenterostomy the stoma was found patent at least fifteen weeks and in one case fifty weeks after the operation. In every case in which the opening was patent food passed into the gall bladder and in several instances it entered the cystic duct. Only once was it found in one of the hepatic ducts. In one animal with a large stomabarium was demonstrated roentgenologically in

# GYNECOLOGY

## UTERUS

Schaeffer C. C. Prolapse of the Female Genital  
Vol 11 Med 1927 22 1 27

Argument regarding the relative importance of the fibrous as opposed to the voluntary muscular supporting structure of the pelvic organs is futile. The action of both is constantly interdependent. Of the fibrous supports the true lateral ligaments or Colles ligaments are especially important. It can be shown by dissection that the uterus will be supported in the cadaver if all other supporting structures are destroyed. The true utero sacral ligament are deep condensations of fascia carrying the uterine artery as it crosses the ureter. The c should not be confused with the folds of serous peritoneum called by this name and used in the surgical correction of retroversion. The term ligament is not exactly applicable to the so-called ligaments of the pelvis which are simple condensations or thickenings of ensheathing layers of fascia.

The bodies of the pubococcygeal muscles are bound together centrally by fibrous raph and have no true muscular continuity in the midline. The perineal body is fibrous in nature but binds for efficient action three groups of voluntary muscles. Hence its rupture is of two fold importance in the mechanism of prolapse. As supporting structures the real value of the round ligaments broad ligaments meso-ovarium and meso alpinx consists in their action as guy ropes helping to maintain the normal anteversion. The author calls these secondary supports.

The great mechanical advantage of the normal anteverted position consists in the diversion posteriorly of all forces tending to cause descent the uterus being pushed posteriorly and against the rectum and perineum rather than into the axis of the vagina as in the position of retroversion. The ante retrocession of the cervix is an important factor in the tendency of the fundus to tip forward or back. In the normal position the levators are able to act as supports in the direction of their maximum contractile force.

Cystocele is occasionally due to a demonstrable tear of the vesicovaginal fascia but more often to a generalized relaxation. Pressure of the head on the dilated cervix is a frequent cause of this accident while delivery with a distended bladder is also an important factor in its production.

Urinary rectocele is due to laceration or stretching of the structures of the perineum and of the lower rectovaginal septum. It should be distinguished from high rectocele which is due to injury to the rectovaginal plate and is unaffected by the ordinary type of perineorrhaphy.

Palliative treatment is seldom successful but it should be carefully planned on clearly rational indications. With the advent of local anesthesia and the intelligent use of the vaginal route for operative work the number of advanced inoperable cases should be reduced to a minimum.

Several operations are discussed including the Watkins the Bal's, the Webster and the Coffey the attempt in all being to restore as nearly as possible the original anatomical relations. Perineorrhaphy in particular is an attempt to restore the correct anatomical relations. The Watkins-Wertheim interposition operation while not anatomically correct has been found very successful. The many operative failures seen in these cases emphasize the importance of careful study of each case.

De ll W Jr The Treatment of Uncontrollable Adolescent Bleeding with Radium 1 J R 1st of 1927 xvii 462

A report is made on thirty cases of excessive menstruation in adolescent patients who had been under careful medical management without being benefited.

The best method of treatment is the intra-uterine three capsules of radium in tandem screened with 2 mm. of brass being employed. When external irradiation must be employed at least half a gram of radium must be available. An average of 1000 mc hrs was given with a screen of 1 mm. of brass and 1 mm. of lead at 5 cm. distance over each ovarian region and with cross fire over the pelvis.

The control of the menorrhagia is due to direct action on the ovarian follicles as well as upon the blood vessels of the endometrium.

In the sixteen cases of Group 1 the condition returned to normal immediately or within a few months. In this group the patients received an average of 583 mc hrs. In the five cases of Group 2 a period of amenorrhoea was followed by normal menstruation. In this group the average dosage was 800 mc hrs. In Group 3 permanent amenorrhoea resulted. The average dosage in the six cases of this group was 712 mc hrs. In three cases treated by external irradiation the patients are clinically well from six to twenty four months after treatment. Radium was used in all cases.

Menstruation may be irregular or absent for many months up to four years and then return to normal. No serious impairment of health could be attributed to the radium treatment.

Only such cases as do not yield to any form of medical treatment and in which health is seriously threatened by hemorrhage should be subjected to radium therapy. Wide experience is necessary.

apparently neither inflammatory or neoplastic which affect local segments of the intestinal tract usually in the sphincteric regions.

In congenital hypertrophic pyloric stenosis there is no actual obstruction of the pylorus and the hypertrophy does not affect the circular fibers of the true sphincter. It is possible that the hypertrophy is the result of constantly recurring over action. The tendency toward hypertrophy as the result of repeated forceful contractions is well marked in involuntary muscle. It is significant that this change occurs at a situation in which a pure parasympathetic nerve supply merges with a mixed parasympathetic and sympathetic supply.

Hypertrophy of the lower ileum in the ileocecal region is similar in pathology and origin to congenital hypertrophy of the pylorus and like the latter occurs where a parasympathetic nerve distribution and a sympathetic supply is continued.

It is believed that in congenital hypertrophy of the colon (Hirschsprung's disease) hypertrophy of the muscular coat and dilatation of the colon canal are the original and primary feature. This condition is similar to the already discussed and also occurs in a situation where a sympathetic nerve supply comes in contact with a parasympathetic distribution.

Though in the early months of life there may be highly distinctive derangement of the smooth muscle of the alimentary tract which are characterized by hypertrophy but under certain conditions eventually undergo restoration to normal.

While the destructive feature of involuntary nerve derangement in the early weeks and months of life is localized hypertrophy derangements of a later period are characterized by exaggeration of the normal function of the muscular coats the function of peristalsis. Consequently during a period which extends from the sixth month to the end of the second year intussusception is the result of an excessive and

misguided peristalsis occur. Under certain conditions possibly due to some dietetic error a true peristaltic wave may advance at a very rapid rate. This is called the peristaltic rush and is evidently the factor inducing the intussusception. As long as inhibition precedes contraction no harm results but when the wave reaches the lower end of the ileum an area in which a new type of nerve supply is encountered the preceding phase of inhibition is not transmitted the result being that the strong contraction of the peristaltic rush carries a circular area of the gut into the distal segment as an invagination and the intussusception begins. The peristaltic rush is not followed by intussusception unless the ileocecal segment is provided with a loose mesenteric attachment. While the laxity of the attachment offers a mechanical explanation of the migration there is probably a further influence which concerns the nerve supply of the bowel.

The etiology and pathology of the disorders of a full life are not well understood. Spasms, achalasia and atonies give rise to symptoms but they seldom leave a pathological condition which can be demonstrated at postmortem examination. Spasms of the ileum and pylorus may closely simulate appendicitis and gastric and duodenal disease.

C. J. GLASPEL, M.D.

Christoph F. S. Bphr. ni Abs. e. III. M.  
J. 92. 1. 31.

This article reports a case of subphrenic abscess following appendectomy. Drainage of the abscess through the right tenth rib in the axillary line was followed by recovery. The author reviews the literature of subphrenic abscess and calls attention to the observation made by Pugs and Coleman in 1922 that stimulation of the central portion of the diaphragm produces pain sharply limited to a point 5 cm. or more along the left pectoral ligament on the neck.

W. M. H. HOBART, F.R.C.S.



# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Herman A G J Simultaneous Intra Uterine and Extra Uterine Pregnancy (Ueber gleichzeitige intra und extra uterine Schwangerschaft) *Archiv f. Gyn. u. Geb.* 1926 117 2 97

Herman reports the case of a 40 year old para vi Operation for ruptured tubal pregnancy on the left side in the third month revealed also an intra uterine pregnancy Twelve hours after the operation a 7 cm fetus was expelled from the uterus The placenta which was removed with instruments was inserted in the right cornu In the extra uterine pregnancy no fetus could be found but chorionic cells were noted macroscopically

The author reviews similar cases reported in the literature to date and emphasizes that the possibility of a double pregnancy should always be borne in mind The safest treatment is immediate abdominal extirpation of the pregnant tube with utmost conservation of the ovary and corpus luteum

LAMERS (G)

Shaw W The Distribution and Significance of Ectopic Decidual Cells *J. Obst. & Gynaec. B. I. Imp.* 1927 23 18

There is very strong evidence to support the contention that decidual reaction is controlled by the corpus luteum Apart from the findings of a few isolated experiments of Loeb which can perhaps be explained in some other way there is no evidence to show that decidual production occurs independently of the presence of a corpus luteum in the ovary Moreover histological evidence supports the view that the corpus luteum exerts its influence by means of a hormone circulating in the blood stream If this hypothesis is correct however the decidual reaction should be spread diffusely through all of the organs of the body whereas there is no reliable evidence to show that decidual cells are found above the diaphragm Moreover decidual reaction is well marked in particular areas such for example as the endometrium in cases of ectopic gestation the pouch of Douglas and endometriomata and this selective distribution cannot be explained unless some further stimulus is postulated

From purely experimental findings Loeb came to a similar conclusion He therefore suggested that the corpus luteum sensitizes the endometrium for decidual production but that there must be an additional stimulus in the form of the fertilized ovum or a local mechanical stimulus Meyer confirms this view and has pointed out that an ectopic decidual reaction is most evident in the region of areas of inflammation Meyer ascribes to this

inflammatory factor the role of the additional stimulus That this explanation is unsatisfactory is shown by the occurrence of ectopic decidual cells in situations where no inflammatory changes can be found

The function of the decidual cells is by no means clear It is usually stated that they help in the nourishing of the young ovum but on purely physiological grounds it is difficult to believe that this is their sole function It is extremely probable that ectopic decidual cells are produced for some purpose It is impossible to believe that such collections of cells represent the prodigality of the corpus luteum in the secretion of this particular hormone Again why is it that with ectopic decidual cells the distribution is so irregular? For example while some cells in the pouch of Douglas respond cell immediately adjacent in similar anatomical relations are unaffected

These considerations favor the conclusion that although the corpus luteum factor is hormonal in its influence only certain cells are capable of responding to the hormone It is therefore suggested that the property of decidual reaction is inherent in certain cells which are derived from the subseral mesoblast

This explanation is obviously both primitive and unsatisfactory and is not in keeping with the notions of morbid histology But indirectly some evidence in favor of it is offered by the distribution of endometriomata It is clear that there is a very well marked resemblance between the distribution of ectopic decidual cells and endometriomata In the ovaries and the pelvic lymphatic glands this is so striking that it is difficult to believe there is no relation between them Accordingly the question of the etiology of endometriomata again comes up for consideration Sampson's theory offers no explanation of the resemblance between the distribution of ectopic decidual cells and endometriomata and those who do not accept his theoretical consideration or the evidence he advances in support of his theory and who incline rather to the view of Meyer and Schiller cannot express any dissatisfaction On the other hand a parallel is at once evident between the recent views of Schiller and the view expressed in this article

E. L. CORRELL, M.D.

Oller Sir T Heart Disease and Pregnancy *Brit. M. J.* 1927 1 109

Because of increased cardiac output a slight increase in the size and weight of the heart is noted in pregnancy The cardiac lesion of greatest danger in pregnancy is mitral stenosis

The treatment of a heart condition should be given during pregnancy parturition and the lying in

before one is justified in using radium in cases of adolescent bleeding.

The question of subsequent pregnancies is discussed

A. JAMES LARKIN M.D.

**Dautwitz T.** Observation for Thirteen Years of a Radium Radiat. of Case of Inoperable Carcinoma of the Cervix (Beobachtungen zu 13-jähriger Beobachtung eines radikal strahlentherapierbaren Gebärmutterkarzinoms). Z. n. d. f. Gyn. 1926 1: 3037

The case is reported of a woman 53 years of age with a carcinoma of the cervix uteri which had invaded the vaginal vault. After surgical treatment which had to be limited to excision and cauterization of the cervix the patient was turned over to Dautwitz for radium treatment. Between the years 1913 and 1917 120 rad. actions with a total of 84,261 mgrm hrs. radium element were given. The details of the method used varied with the progress of radiation technique.

Ten years after the beginning of the treatment the patient felt entirely well and all signs pointed to a clinical cure. Later fresh blood appeared in the stools with hematuria and further radiations were instituted in the belief that the carcinoma had invaded the bowel wall and the bladder. The author defends the propriety of this action on the ground that he believes radiation injury may be relieved rather than aggravated by further radiation and he doubts whether without this further radiation the definitive cure which he claims for this case would have resulted. The long continued bleeding from the bowel is ascribed to hemorrhagic sigmoiditis.

In 1920 boring pains were felt in the knee joint. Three years later limitation of motion of both hip joints the result probably of arthritis deformans or osteoplastic carcinomatosis appeared and remained. In 1926 the patient is otherwise in the best of health.

Dautwitz combines external with vaginal radiation. The injury to the intestine especially that to the sigmoid flexure which must have resulted from the external applications led him to believe that according to recent methods uniform radiation of the small pelvis in these cases would influence the carcinomatous process only when the amount of radiation approached that of the tolerance dosage of the intestine.

ZETTSCHMANN (G.)

**Wille F. C.** Results of Operative Treatment of Cervical Carcinoma in the Charité Gynecological Clinic during the Years 1916-1920 (Ergebnisse der operativen Behandlung des Carcinoms des Gebärmutterhalses in der Charité Gyn. 1916-1920). Z. n. d. f. Gyn. 1926 1: 3037

This article from Franz's clinic reviews the indications for operative treatment of cervical carcinoma and the final results.

During the years 1916-1920 308 cases of cervical carcinoma were treated by operation. 15.5 per cent were inoperable cases. 8.1 per cent were almost inoperable. The remaining cases were typical and easily operable. The limits of operability were broadly drawn. Only in cases of involvement of the bladder was the consideration of operation dismissed.

In 206 cases the Wertheim method was used of these 133 patients or 44.93 per cent are still alive after 5 years the primary mortality being 14.18 per cent.

Of the 66 patients operated upon during the last year (1920) 37 or 56.05 per cent are still alive after the 5 year period of observation.

Only 12 operations after Schauta's method were performed. These were exclusively instances of not far advanced carcinoma. Eight of the 12 patients thus operated upon vaginally have lived out the 5 year period.

The most favorable final results were obtained in the incipient cases the primary mortality being only 6.5 per cent. Of these cases 6 per cent may be regarded as cured. The results are essentially worse in the border line group only 25 per cent of these patients are still living after 5 years.

In four of the cases of carcinoma there was a coincidental pregnancy. The cancerous process was treated as soon as the diagnosis was made without regard for the fetus. In only one instance in this group was a permanent cure attained.

Seventeen of the patients received preliminary radiation (roentgen radium and roentgen plus radium) treatment. Of these 41 per cent have remained alive for the 5 years.

When the patient was more than 65 years of age operative treatment was not considered. Fourteen patients (4.7 per cent) had not reached the thirtieth year of life. None died as a result of operation. Of the 14 patients 8 were still alive after 5 years.

The above results do not indicate that the carcinomatous process is especially malignant in young women.

#### ADNEXAL AND PERIUTERINE CONDITIONS

**Dickens F. Dodds E. C. Binkworth D. J. T.** Preparation and Properties of the Ovarian Hormone in a Water Soluble Form. Z. f. 1927 1: 15

Up to the present time ovarian hormone has been obtained in the form of an oil insoluble in water but soluble in organic solvents. A method is described for obtaining the estrus producing hormone in a water soluble form by extraction from the placenta the yield being over 1,000 units per kilogram. The activity of the preparation can be reduced to below 0.5 mgrm per rat unit. The properties of the new extract are discussed.

MAGNUS F. U. ES M.D.

retention and hypertension without them the attacks can occur. There need be no preceding albuminuria nor disturbance of renal function. Eclampsia is most apt to develop in primiparae more than 35 years of age and occurs most frequently either shortly before or after delivery.

The occurrence of the convulsions during labor is due not to the uterine contractions in themselves but to the emotions, pain and bodily exertion associated with the bearing down efforts. The cause of the frequent occurrence of the convulsions after delivery is the sudden cessation of the placental function which disturbs the already very labile balance of the sick pregnant woman. Because of the coma and the administration of narcotics labor pains are of little or no importance in the occurrence of new attacks. On the contrary, the attacks mean very strong stimulation of the uterus which begins to contract strongly usually to such an extent that delivery results. As a rule delivery occurs more quickly under the influence of the attacks than under normal conditions; this explaining why eclampsia usually seems to occur during parturition.

The attacks are injurious to the entire sick organism and particularly to the central nervous system, the kidneys, the liver and the heart. The same injuries may occur in the diseased pregnant woman in the absence of attacks but under such circumstances are usually less severe. This fact indicates that eclampsia is a special phase of the disease of pregnancy. The duration of this phase is limited from several hours to two or three days after a high length of time the attacks cease even without treatment. Their cessation has little or no relation to delivery. Injury to the heart and the danger to life increases with the number of attacks. If the kidneys are especially injured, transient uræmia occurs. When this persists too long it may be fatal after three or four days. Severe degeneration of the liver, hemorrhages and necrosis cause death more quickly if the condition continues sufficiently long. Icterus may develop. With an increase in the number of attacks the coma becomes deeper and there is a greater possibility of the development of a psychosis if the patient survives the eclampsia. The attacks are dangerous to the child aside from the fact that they favor premature birth.

As a rule the blood pressure falls under the influence of an attack and this drop may be a factor in the spontaneous cessation of the attacks. Immediately after an attack there is a disturbance in the regulation of the blood supply, which because of the blood pressure shows marked variations and a high peak. The latter lasts for only a few minutes and is the occurrence of a vascular spasm which explains the occurrence of a variety of hemorrhages such as apoplexy, hemorrhage of the placenta, etc.

After delivery and cessation of the convulsions the blood pressure usually rises and about two

days later returns to the pre-pregnancy level in from ten to fourteen days. The increase may be partly a reaction to the decrease occurring during the attacks but may be also a manifestation of the injurious influence of the sudden cessation of placental function. A similar postpartum increase as well as the appearance or increase of albuminuria is noted also in the cases of sick pregnant women without eclampsia.

The favorable effect of the removal of the ovum, the primary cause, is first manifested after about forty-eight hours. Therefore because of the short duration of the eclampsia the treatment can be only symptomatic and directed against the attacks and their results. Active therapy should be performed only on behalf of the child. The interest is of the mother demand that the attacks be subdued before delivery. For this purpose the best treatment: protection from all irritation, the administration of narcotics and venesection. The narcosis and bleeding associated with active treatment have made it appear that delivery has a favorable influence but this is incorrect.

Venesection should be performed under control of the pulse and blood pressure. If the blood pressure falls stimulants must not be withheld too long. If the attacks cease early the pregnancy may be permitted to continue. In exceptional instances all disease manifestations may disappear nearly completely and a living child may be delivered at term. As a rule, however, delivery occurs after a few days usually after the fetus has died. Not rarely symptoms recur a few days later and induction of labor becomes advisable. If during the time the patient has been kept on a salt free diet there is no danger of new convulsions. Threatening eclampsia requires bed rest, water and a salt free diet. When there is immediate danger the administration of narcotics and venesection may overcome the threatening symptoms. LAWERS (G)

#### Tomson C. J. The Pathology of Fetal Maceration. *J Obst & Gynaec Brit Emp* 97: 284-94, 1900

This report is based upon twenty-seven macerated fetuses of viable age occurring in a series of over 100 cases of stillbirth and neonatal death investigated by the author. The article has three sections: (1) a brief resume of work already done in this field; (2) a description of the macroscopic and microscopic changes occurring in maceration and (3) a consideration of the nature of maceration.

A special effort is made to trace the consecutive changes occurring in each of the important viscera in the three stages of maceration.

The changes which the normal fetal tissues undergo in the uterus subsequent to somatic death differ markedly according to whether the membranes remain unruptured or not. When the membranes remain intact a peculiar non-organismal form of dissolution takes place.

The aseptic softening of the tissues in maceration is of the nature of an autolysis and consists in the

period. If the lesion is well compensated and there is no embarrassment of respiration the patient should be kept under observation the blood pressure carefully tabulated and diet and exercise regulated. If at the end of pregnancy the pulse becomes rapid or weak or feeble the patient should be kept in bed and given digitalis.

During the first stage of labor signs of fatigue must be watched for. The second stage must be shortened as much as possible.

During the puerperium the patient must be kept under careful observation.

Cardiac patients of the working classes should be treated in antenatal and postnatal clinics.

W. G. S. T. URBAN, M.D.

Stanley H. J. Clinical and Experimental Studies on the Toxæmias of Pregnancy. *Am J Obst & G* 1927, 11, 551.

The author sums up the clinical and experimental studies of the toxæmias of pregnancy which have been previously reported from time to time and then discusses the treatment he now uses.

In the authors crises of mild eclampsia the modified Stroganoff treatment (chlormorform and venesection eliminated) is given as it has been found to reduce the maternal mortality in this group to below 2 per cent. In the severe type a biter method of treatment was urgently needed. Stander therefore decided to attempt prompt delivery under spinal anesthesia. He is not yet in a position to say that results will follow this rather radical departure but experimental evidence seems to support the opinion that the maternal and fetal mortality will be reduced.

A blood analysis is done in every case of eclampsia as soon as the patient enters the hospital. The respiration and whether coma persists throughout the dioxide combining power is determined every two hours. If the carbon dioxide falls to below 30 volumes per cent the patient is given from 25 to 30 units of insulin with a protective dose of glucose to overcome the acidosis. The insulin therapy is instituted only to relieve the condition of lowered alkali reserve and does not interfere with other steps in the treatment. B. L. CONNELL, M.D.

Young J. Recurrence of Pregnancy Toxæmia and Its Relation to Placental Damage. *Edinb Med J* 1927, 34, 6.

The author has previously reported evidence supporting the theory that the immediate cause of the phenomenon of eclampsia is massive damage of the placenta. He believes that the degree of toxæmia depends upon the amount of toxin elaborated by the placenta integrating its development of the toxæmia requires a certain time for the formation of the toxin and the toxin is taken into the maternal blood stream. This explains a toxæmia as the rule of partial detachment (a dental hemorrhage) whereas it does not occur a rapid and complete detachment.

The author's investigations were conducted on a series of 110 cases of toxæmia and a dental hemorrhage at the Royal Maternity Hospital Edinburgh. These investigations indicated that in women who develop convulsive or non-convulsive eclampsia there is some factor tending to cause placental damage. In probably the majority of cases in which this occurs a rapid termination of the pregnancy by abortion or accidental hemorrhage, premature birth or stillbirth takes place, toxæmia being thereby prevented. Toxæmia occurs only when after placental damage the abortion or premature birth does not occur soon enough.

The factor which causes placental damage may be general or local. Infection, e.g., chronic metritis and cervicitis, focal infection, etc., may be indicated by the frequently associated febrile temperature. The chemical nature of the toxin responsible is unknown. The author is of the opinion that histamine is probably a factor as experiments have shown focal damage to the uterus following its injection into the blood stream.

The distinction which has frequently been drawn between eclamptic and non-recurrent eclampsia and nephritic or recurrent eclampsia has been a proved error. There is now considerable evidence for the view that the eclamptic and nephritic toxæmias have a similar origin in the disease process and that in both types the kidney damage is secondary and often aggravated by the placental damage occurring in successive pregnancies. Bright's disease is a complication of only a small number of cases of eclampsia having little in common with the true pregnancy toxæmia.

The author found a recurrence of toxæmia in 20 per cent of his cases. He attributes about one half of the cases of abortion and premature birth are added to the cases of recurrence in his series. The total incidence of recurrence was 44 per cent. This is much higher than the incidence usually reported and tends to support the author's conclusions.

In three cases in the series the eclampsia was associated with placenta prævia. It is suggested that this association was due to absorption from the traumatized prævial portion. The frequency of abortion, premature birth and toxæmia in such cases suggested that the factors underlying placenta prævia and toxæmia may be identical.

GOODRICH C. SCHULTZ, M.D.

De Snoo H. A Study of Eclampsia. *Edinb Med J* 1927, 34, 6.

This is an exhaustive monograph on the incidence of eclampsia in the Netherlands. The author is of the opinion that eclampsia must be related to a pathological condition of pregnancy. Of importance in its development are sodium chloride

**Harrar J A Rectal Ether Analgesia in Labor  
Technique and Results in 5 800 Cases at the  
New York Lying In Hospital 11 J Obst &  
Gy 9 7 211 486**

In 5 800 labors under analgesia the author has observed no increase in a phytia at birth or in the stillbirth rate. Neither was there any prolongation of the perineal stage or increase in forceps delivery. The only contra indication to the procedure is uterine inertia and the only restriction is not to start too soon. The woman should be in active labor that is there should be pains every four to five minutes lasting forty seconds and in a primipara the cervix should have attained a dilatation of two or more finger tips. The mechanism of labor must be as closely followed by the obstetrician as if no analgesia were induced.

The drugs required—morphine magnesium sulphate ether and quinine—are easily obtained and their action is well known. Quinine is found to be essential in the rectal instillation formula. The method has a much wider applicability than scopolamine amnesia. It can be used safely and effectively by the physician in home confinements and does not require the services of a trained anesthetist. This is the safest and most effective method of relieving the pain of childbirth over a period of hours that has yet been devised. It will abolish the most dreaded part of the ordeal of labor without endangering either the mother or the baby.

F I C RYELL M D

**Carrell J F Perineal Injuries During Parturition  
with a Report of 336 Cases 1m J Obst &  
Gy 9 7 1 627**

The closure of an episiotomy wound is quite simple when compared with the repair of a traumatic laceration especially if the wound was compounded and has tributary lacerations running up into the sides of the vagina. The simple introduction of two or three non absorbable sutures even though they pass to the very depths of the wound can no longer be considered good surgery.

The author uses the median incision if episiotomy is indicated. It is most often employed in the cases of primiparae and in multiparae who have had extensive perineal repair previously. If a central incision is on extending down to the superficial fibers of the anal sphincter does not afford sufficient room for delivery of the child. An oblique extension of this incision to either side of the rectum may be made. The oblique part of this incision divides the posterior fibers of the levator ani muscle on the side on which it is extended and these must be carefully sutured as soon as delivery is completed.

These wounds are sutured with No 2 or No 3 twenty day chromicized catgut. The structures are united in the reverse order from that in which they were severed that is the muscle at the depth of the wound and at its upper end is sutured first. All sutures are interrupted except those in the vaginal mucosa. All dead parts are obliterated.

Whatever the technique the perineal incision should be made for prophylactic purposes and not as an emergency.

In 336 recent cases of delivery at the Jefferson Hospital Maternity 125 of which were those of primiparae there were 164 vaginal and perineal tears ranging in degree from a slight mucous membrane abrasion to a severe laceration involving the sphincter muscle and the rectum.

Of the 125 patients delivered for the first time thirty four (27 per cent) were free from lacerations forty three (35 per cent) suffered first degree lacerations and forty seven (38 per cent) suffered second degree lacerations.

In this series twenty-one episiotomies were performed seventeen on primiparae and four on multiparae.

E L CORNELL M D

**Phaneuf L E The Obstetrical Future of Women  
Delivered by the Low or Cervical Caesarean  
Section 1m J Obst & Gy 9 7 217 446**

Seventy one cervical caesarean operations were performed on thirty gravidæ. Of these forty-one were repeated sections in the lower uterine segment. Three women had four operations five had three and twenty two had two. Of the original thirty first operations fourteen were done according to the Veit Fromme Hirst method and sixteen according to the Sellheim technique. Upon separation of the bladder in the forty one repeated low caesarean sections the lower segment was found to be smooth there were no depressions and the previous scars as such could not be identified.

From a study of the series the following conclusions are drawn.

- 1 The low or cervical caesarean section is followed by perfect healing of the cervical scar.
- 2 It gives definite protection against rupture in subsequent pregnancies and labor.
- 3 Delivery through the natural passages is possible in many cases when no disproportion is present. This is true of cases in which an abdominal delivery for a relative indication was presented in a previous pregnancy.
- 4 The dictum once a caesarean always a caesarean does not necessarily apply to cases of cervical caesarean section.
- 5 The operation may be repeated with ease.
- 6 Pelvic adhesions are reduced to the minimum except when the Veit Fromme Hirst technique is employed and even the adhesions following the latter technique do not interfere with the performance of a secondary cervical section.
- 7 Abdominal herniæ are rare. Not a case was observed in any of 206 cervical caesarean operations.
- 8 The convalescence is more nearly that of a pelvic delivery. As there is no handling of the intestines shock and distention are reduced to the minimum.
- 9 Protection is offered against peritonitis.

E L CORNELL, M D

breaking down of the complex protein molecules into simpler compounds by proteolytic ferments contained in the cell bodies themselves. These cytolysins are specific for various types of cells and their albuminoid decomposition products consist mainly of peptones and hemialbumins. Concomitantly with these chemical transformation, definite histological changes take place in the cells themselves during maceration. Granularity of the cytoplasm is an early and practically constant feature and is later accompanied by swelling with gradual loss of the cell outline. Such a condition of the protoplasm is a true granular degeneration indicative of cell death. It is a preliminary to liquefactive necrosis.

In the author's cases fat granules were occasionally noticeable in paraffin sections in the form of small vacuoles in the autolysing cytoplasm.

In some cases the nuclei undergo a preliminary pyknosis before dissolution but the most frequent change noted by Thomson was a gradual karyolysis in which the nuclear membrane was the last structure to disappear. After granular disintegration and karyolysis the cells undergo liquefaction.

The temperature and the reaction of the medium surrounding the cells and the state of metabolism at the time of death have an important bearing upon the progress of fetal maceration.

Highly functioning individual parenchyma cells invariably disintegrate more rapidly than the less specialized connective tissue cells of the same organ.

E. L. CORNELL M.D.

## LABOR AND ITS COMPLICATIONS

Glumper P. Facial and Frontal Presentations (Dissertation) *Verh. Tsd. k. u. i. k. en G.* 1906 xxxi 20

Glumper reviews the percentages at the Rotterdam School for Midwives in sixty-eight cases of facial presentation, twenty-five cases of brow presentation, and ninety cases of frontal presentation admitted during the period from 1907 to 1913. The facial presentations occurred in the cases of thirty primiparae and thirty-eight multiparae; the brow presentations in the cases of two primiparae and twenty-three multiparae; and the frontal presentations in the cases of thirty-one primiparae and fifty-nine multiparae.

All factors which weaken the stability of the head at the lower pole of the uterus favor the occurrence of a facial or frontal presentation, whether or not such a presentation results in the presence of such a factor depends upon chance. Frontal presentation represents the slightest degree of flexion. Because of the presence of the face on the anterior lower part of the skull the transition of the head into more marked flexion is rendered difficult. Brow presentation represents a middle position in a labile balance which remains unchanged only under certain conditions. It is incorrect to regard the brow presentation as an incomplete facial presentation; transition to a frontal presentation is possible.

The treatment of frontal presentation is similar to that of occipital presentation except that in the former delivery is possible with both the face and the occiput anterior. In cases of facial presentation it is best when possible to await spontaneous delivery; if interference is indicated, correction to an occipital presentation should be attempted before the high forceps are applied. In cases of brow presentation the position of the head should be corrected as soon as the cervix is completely dilated if there is no possibility of spontaneous delivery. Before complete dilatation of the cervix a change into a frontal or facial presentation is necessary.

The condition of the pelvis must always be taken into consideration. When the head is not engaged it is usually advisable to place the woman during labor on the side toward which the back of the fetus is directed. If properly managed, frontal and facial presentation are no more unfavorable for the mother than occipital presentation.

The article contains a critical review of the literature, numerous tables and four schematic drawings. LAMERS (G)

Miller D. Occiput Posterior Position of the Fetus: A Survey of 759 Cases. *Edinburgh J.* 1917 xxxi. Ed. by the Obst. Soc. 77

This article is based upon 759 cases of occiput posterior position seen in the Edinburgh Royal Maternity Hospital. The abnormality occurred in 18 per cent of vertex presentations. In more than 90 per cent of the cases the occiput was directed toward the right.

Spontaneous rotation occurred in 474 cases (more than 60 per cent). Spontaneous rotation and delivery resulted in a morbid puerperium in twenty-four cases and seven fetal deaths. In fifty-one cases of spontaneous rotation, high forceps delivery there were six fetal deaths and seven cases of puerperal morbidity. Spontaneous delivery face anterior occurred in eighty-eight cases. In this group there were eight fetal deaths and three cases of puerperal morbidity. Arrest of the head at the pelvic brim occurred in 64 per cent and resulted in a maternal morbidity of 20 per cent and a fetal morbidity of 33 per cent. In 18 per cent of the cases the head was arrested in the lower part of the pelvic cavity and in one third of these it had rotated posteriorly into the sacral cavity. In 50 per cent of the cases of impaction, manual rotation was done and followed by spontaneous or forceps delivery. In 25 per cent in which delivery was effected by forceps, rotation of the fetal mortality was 20 per cent. Rotation with forceps should be undertaken only by those who are expert.

The high fetal mortality in this series of cases suggests to the author that where there are clear indications of fetal flexion, manual rotation of the fetal head with external rotation of the fetal body might be done with advantage as a routine procedure early in the second stage of labor.

MAGNUS P. LARSEN M.D.

There is a striking analogy between the process and that of a wound healing by granulation in the presence of sloughs and microorganisms.

The fourteenth day is roughly the turning point at which building up definitely exceeds retrogression. At the end of three weeks the process of restoration is still far from complete. After from five to six weeks restoration should be fairly complete but evidence of recent pregnancy may be recognizable for a considerably longer period even under circumstances most favorable for involution. Such evidence is found in the presence of pigmented phagocytes and remains of the uteroplacental vessels.

Six specimens are described and shown in plates  
E. L. CORNELL M.D.

Hunte J W A Acute Postpartum Oedema of the  
Cervix Uteri J Obst Gyna 1 1 1 p 1927  
x 7

A para IV one month past due was suddenly taken with a desire to defecate and gave birth to an 8 lb baby with only one pain. Immediately thereafter she noticed a fleshy lump outside the vagina which rapidly increased in size, caused considerable pain and was very tender to the touch. About two hours later she showed some of the signs of moderate shock.

This case presented many curious features and a diligent search has revealed no similar case in the literature. The almost instantaneous swelling and descent of the cervix following the extremely precipitate labor occurred under conditions entirely precluding the possibility of prolonged pressure on the cervix between the presenting part and the pelvic brim. Moreover there had been no previous descent or protrusion of the cervix uteri during the pregnancy or before it nor had such conditions arisen in previous labors. The most striking feature of all was the complete return of the cervix to the normal state without hypertrophy or prolapse.  
L. I. CORNELL M.D.

Millar C J Puerperal Infection S. J. M. J. 1917  
9

The author contends that in the local treatment used so generally in the past for puerperal infection every principle of anatomy, physiology and pathology is disregarded. He asks: Why douche the uterus? For instance, when it has been repeatedly proved that bacteria travel so fast it is a physical impossibility to wash them away before they invade the deeper structure? Why curette the uterus when in all we accomplish by it is to scrap away the superficial necrotic layer and disturb the underlying protective leucocytic infiltration and thus run even the chance of converting what might have remained purely local process into a true blood infection. Why use antiseptic solutions when laboratory evidence all goes to prove that bacteria cannot be killed in the human tissues by external applications?

On Miller's service the local treatment for puerperal infection is limited to exactly one procedure. If when the patient is first seen the cervix is patulous, lebrum protrudes therefrom and the uterus is soft and flabby the remnants of placenta and membrane are gently removed preferably with the gloved finger but occasionally with the sponge forceps. Even this is not done unless there is free bleeding which has not been checked by a firm vaginal pack supplemented by dose of pituitrin and ergot. If the cervix is closed and the uterus well contracted no manipulations of any sort are done. Drainage in such cases is of vital importance but is not secured by mechanical means or even by posture although Fowler's position is frequently helpful. If the uterus is firmly contracted drainage along lymphatic and venous channels will occur naturally and no manipulations will improve it.

In puerperal conditions of the adnexa immediate surgery is seldom indicated. When the gonococcus is the invading organism localization is almost the rule and when the streptococcus is present laparotomy is so serious a matter even when delayed for months that it should never be resorted to except on extreme indications.

Hysterectomy has a very limited field. It should not be done unless conditions are present which would warrant its performance under any circumstances.

For peritonitis laparotomy is theoretically a logical procedure and if the infection is generalized it is a necessary procedure but the practical difficulties are very great. If the process is localized in the pelvis the chances are that it will remain there and laparotomy will only spread it. On the other hand if it is already generalized involvement is so rapid and epicemic such a frequent accompaniment particularly if the streptococcus is responsible that the situation is frankly hopeless.

In pyæmia ligation of the pelvic veins with the idea of preventing the entrance of detached particles of crumbling thrombi into the general blood stream has also a very limited field. The diagnosis of pyæmia is frequently difficult. Even when it is definite and the abdomen has been opened it is not always possible to decide how far the thrombi have extended. Ligation below the farthest point of extension is obviously useless.

Localized pus collections should of course be opened as soon as fluctuation is present but in parametrial exudates resolution is better effected by natural processes. Infected exudates and tubal abscesses which are pointing or bulging in the cul-de-sac may be treated by colpotomy which is a practical procedure even for a desperately ill patient.

For several years the author has been giving transfusions of whole blood with an equal amount of Ringer's solution in quantities of not more than 300 cc. These are given at three day intervals and from different donors. The results are better than those of any other special treatment. The anemia is improved, the blood pressure raised and the leuco-

Montgomery T I The Morbidity and Mortality of Cesarean Section *Am J Obst Gyn* 1937 1: 110

Montgomery reviewed twenty-five classical cesarean sections performed under other anesthesia by various surgeons. The maternal mortality was 16 per cent.

The first death was due to sepsis and the second to peritonitis. In the third fatal case the patient was admitted to the ward in a moribund condition from severe hemorrhage due to placenta previa and as it appeared that no procedure offered a substantial hope of saving the mother the surgeon chose cesarean section as giving the best chance for the child. The child was saved but the mother died on the operating table. The last death was due to sepsis.

Twenty-six infants were delivered. Of these three (11.5 per cent) were born dead and three died after delivery. A total infant mortality of 23.8 per cent. The three stillbirths occurred in cases of antepartum bleeding—one a case of placenta previa and the two others cases of premature separation of the placenta.

These cases and the report in the literature indicate that the early or elective cesarean section has a low mortality (2 to 3 per cent). In late cases an section of the classical type the mortality is high (20 to 30 per cent).

Delay of operation in cases of hemorrhage is dangerous. An effort must be made to reach a decision for or against cesarean section either early in labor or before its onset.

The statistics raise the question as to whether in late operation for any indication the classical cesarean section alone meets the requirements.

The operative result in fibroma uteri complicating labor is not particularly good.

In placenta previa the maternal mortality is higher when cesarean section is done than when other commonly accepted methods of delivery are used. The operation is most definitely indicated in cases of central placenta previa with a non-dilated cervix.

The feasibility of cesarean section in certain cases of premature separation of the placenta is still under consideration. L. I. C. R. E. M. D.

#### PUERPERIUM AND ITS COMPLICATIONS

P. I. J. O. The Details of Postpartum Care *Am J Obst Gyn* 9: 43

Of 60 per cent of the lesions which make up the diseases peculiar to women are the direct result of poor midwifery trauma infection and failure of the physiological and biochemical processes which take place in involution.

Infection is characterized with resulting relaxation of the pelvic tissues permitting a considerable descent of the uterus retrohysteria, vicer pto, and a full rectum disturb the circulatory equilibrium within the pelvis and allow passive congestion.

The conditions retard the physiological processes and leave a permanent pathological change which is recognizable years later and produces a syndrome known as the gynecological triad: hysteric, vaginitis, and leucorrhea.

The author attempts and in great part succeeds in combating the occurrence of these conditions by: (1) preventing infection (2) relieving the trauma of labor to the myometrium (3) limiting the blood loss (4) immediately rejecting birth injuries (5) maintaining retraction and contraction of the uterus by encouraging breast feeding and thus favoring the physiological acts included in involution (6) favoring uterine and vaginal drainage (7) posture (7) re-estimating the intra-abdominal pressure and the muscular tone of the abdominal wall by having the woman practice suitable active exercises (8) intermittently emptying the venous pelvic engorgement by having the patient assume the knee-chest position several times a day (9) recognizing and treating the co-existing erosions of the cervical mucosa at a time when extension of the infection may be prevented (10) correcting the malpositions and displacements of the uterus with the associated engorgement of the pampiniform plexus by posture manipulation and the retention of the reported uterus with a properly fitted pessary (11) checking up on these conditions by periodic examinations until the involution is complete and the anatomical relations are perfect.

F. L. C. ELLIOT

Teache J H On the Involution of the Uterus Post partum *J Obst Gyn Camb Eng* 9: 1

Knowledge of the macroscopic and microscopic appearance of the uterus at various periods after delivery besides being necessary for a proper understanding of the process of involution in relation to the treatment may be of great importance in the diagnosis of problems which the obstetrician encounters.

Because of the complexity of the changes concerned involution is a complex process under normal circumstances and in the presence of various constitutional and local conditions it probably progresses at a fairly regular rate. The chief disturbance of the healing process is caused by retention of products of the product of conception. Such retention delays the process.

The most reliable information with regard to involution is provided by manual examination of the uterine membrane in the regions which were covered by the decidua and in the placental site. Both of these areas should be examined.

The changes in the first week concern chiefly with demarcation of the tissues which are perished and be shed in the chorio-vaginal region of the surviving decidua and reaction of the uterine are also occurring. In the second week the processes of cleansing and reformation are rapidly taking place and the formation of a provisional mucous membrane is normally completed by about the fourteenth day.



# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

Sturtevant C N and Kelly T C Neurocytoma of the Left Suprarenal Gland with Metastases to the Lile Skull and Bones *Am J Dis Child* 19 7 20 590

The authors state that tumors of the orbit with ecchymosis of the eyelids and proptosis in infants and young children should arouse the suspicion of metastases from a suprarenal growth.

Chloroma is associated with almost identical growth but can be excluded by absence of the characteristic changes in the blood.

The literature refers in some instances to tumors of the left suprarenal causing metastasis first to the left eye and tumors of the right suprarenal causing metastasis first to the right eye. This indicates transmission by way of the lymphatics rather than by the blood stream. The author reports a case in which the first metastasis occurred on the left side the side of the primary growth in the suprarenal.

J Syd Ry Ritter MD

Helmholz H F Chronic Pyelitis in Infancy and Childhood *W J* 31 5 927 8 1 89

There are two common types of pyelitis in infancy. In the first unexplained fever is present without definite physical findings save perhaps slight pallor and restlessness. The presence of large amounts of pus and of numerous bacteria in the urine establishes the diagnosis. The second type of pyelitis complicates such infections as otitis media tonsillitis and furuncles.

Another group of cases observed in infancy are characterized by recurring attacks of fever persistence of malaise and pallor extreme pyuria and great difficulty in fact practical impossibility of effecting a bacteriological cure by the usual therapeutic measures. The majority of such severe infections occur in the presence of an abnormality of the urinary tract interfering with drainage.

In the older child several clinical forms of pyelitis occur. There is the typhoidal type in which the infection of the urinary tract presents no local symptom and is manifested only by fever and malaise. In a second type there may be pain in the lower portion of the abdomen burning and tenesmus on micturition and pollakiuria. In most of these cases a cure follows the forcing of fluids alkalization of the urine or the use of urinary antiseptics. In some cases no doubt cure results without treatment.

In a certain number of cases a bacteriological cure is not obtained because the pyelitis is not recognized and the treatment is inadequate or there is some abnormality of the urinary tract.

In a case of chronic pyelitis in an infant or child the diagnosis should be definitely established by culture of the urine. Then depending upon the length of time that the infection has persisted and the nature of the therapeutic measures that have been used other medical procedures should be attempted before a complete urological examination is undertaken. A combination of ammonium chloride and methenamine has been found the most useful therapeutic agent. In uncomplicated cases of pyelitis the infection generally disappears in from one to three weeks. Cases in which the condition persists in spite of treatment should be investigated urologically. In those due to abnormalities of the urinary tract surgical treatment will depend upon the urological findings.

Blatt P Open Cavernous Renal Tuberculosis without Bladder Symptoms (Offene Kavernose Nierentuberculose ohne Blasen Symptome) *Ach Klin Ch* 9 6 201 6 4

Blatt reports five quite atypical cases of tuberculous pyonephritis characterized by an abnormally mild course and especially by the total absence of subjective and objective bladder symptoms. Two similar cases were found among 130 patients operated upon for unilateral renal tuberculosis on the service of Rubritius. Blatt discusses the relationship of these cases to the cultural characteristics of the tubercle bacillus and suggests that the condition may be produced by a particular strain of the organism.

Block (2)

Judd E S and Simon H E Hemorrhagic Cysts of the Kidney *Surg Gynec & Obst* 19 7 21 60

Large solitary cysts of the kidney are of two types serous and hemorrhagic. The serous cysts are the more common. Cysts containing blood but occurring in association with neoplasms differ from the simple hemorrhagic cysts under consideration.

Thirteen cases of hemorrhagic cysts considered to be authentic have been reported in the literature and two cases have been observed at the Mayo Clinic. These cysts are practically always solitary. They occur in both kidneys and have a predilection for the lower pole. When recognized clinically they are usually large but a few small ones have been found at autopsy.

Hemorrhagic cysts of the kidney have been attributed to various causes including trauma neoplasms and hemorrhage within serous cysts. While these factors do give rise to renal cysts the structure of the walls in the two cases reported in this article was identical with the structure of the wall of an aneurism. The presence within the cysts of layers

cytosis increased at least temporarily. As the reactions are milder and the effect on the blood stream is definitely to be anticipated the procedure lacks the potentialities for harm which are inherent in most methods of chemotherapy.

While the tendency toward localization may prolong the course of the disease it materially improves the patient's chances. Streptococcal septicæmia is fatal in fully three quarters of the cases and general peritonitis has a mortality almost as high.

CARL H. DAVIS, M.D.

Schwarz O H and Deckman W J. Puerperal Infection Due to Anaerobic Streptococci. *Am J Obst & Gynec* 1917 21 467

The authors have been able to classify the anaerobic cocci only roughly using the proteolytic powers of the organisms as an index.

One organism that has been encountered very frequently is a very small gram-negative anaerobic coccus or coccobacillus. In a small series of eight obstetrical patients this was found six times in the vagina and three times in the cervix. It produces on blood agar media a black pigment which is probably melanin. In pure cultures it produces little or no hemolysis but in symbiosis with other organisms, particularly other anaerobic cocci, its hemolytic properties are tremendously increased. The marked blood destruction shown in some cases may have been due to this organism in symbiosis with others.

Anaerobic streptococci were isolated from the blood in eleven cases, compared with six in which other pathogenic organisms were found. The uterine cultures in thirty-five cases showed anaerobic streptococci while in twelve cases they showed other pathogenic organisms. In only a comparatively few instances was more than one organism isolated from the uterine or blood culture. Anaerobic streptococci were recovered in six cases of pelvic abscess and five cases of peritonitis. During the period of study there were ten deaths in cases of puerperal infection. Five cases were due to anaerobic streptococci which were recovered in pure culture. Anaerobic streptococci were found in three other fatal cases but were associated with other organisms. Three of the deaths were due to thrombophlebitis with resulting pyæmia and in one instance there was severe peritonitis which terminated very rapidly. The latter four cases are reported in detail.

Anaerobic streptococci play a considerable part in puerperal infection. The infection is caused by

this organism and in most instances remains confined to the endometrium. Fewer of these cases developed thrombophlebitis because they were rather promptly treated with respect to the uterine lesion. In any case in which there is a profuse foul-smelling discharge the authors make it a point at the time they obtain the uterine culture to remove retained secundines or clots by digital means or by the use of a blunt curette and to follow this with a 1:4000 potassium permanganate douche. In future cases of pelvic thrombophlebitis due to anaerobic organisms, particularly the streptococcus putridus, they will attempt ligation of all pelvic veins.

E. L. CARL, M.D.

Harri J W and Brown J H. Description of a New Organism That May Be a Factor in the Causation of Puerperal Infection. *Bull Johns Hopkins Hosp* 1917 21 13

From the uterus of women with puerperal infection the authors have isolated strains of an organism, actinomyces pseudo-necrophorus, which closely resembles actinomyces necrophorus but differs from the latter in being non-hemolytic when grown in blood agar plates and in failing to ferment lactose. The two organisms do not cross-agglutinate in immunoserum.

The finding of actinomyces pseudo-necrophorus in cultures of the uterus in three of fifty cases in which cesarean section was done indicated that the organism is present not uncommonly. This was evidenced also by the fact that it was found at autopsy in a blood vessel access in another case and in the clinical investigation of two patients who survived. In one of the latter it was cultured from the cervix and in the other from the uterine cavity.

In all of the six cases the lochia was profuse, thin and foul. In the case of the three women delivered by cesarean section the incision broke down and discharged large quantities of thin greenish pus. In all six cases the convalescence was prolonged beyond the normal limit. Five of the six patients were seriously ill. The history of the cases from which the organism was isolated indicate that it is not harmless although it does not appear to be as pathogenic to human beings or laboratory animals as is actinomyces necrophorus to mammals. Because of its extreme sensitiveness to brief exposure to air its presence in the human genital tract has probably been overlooked heretofore.

The authors urge further work to determine the true significance of this organism in human infection.

GOODRICH C. STANTFILL, M.D.

During the progress of these experiments necropsy was performed on a large number of rats fed in other ways. In none of them were calculi found in the bladder.

The authors conclude that the diet used in this investigation favored the formation of calculi because of the peculiar combination of faults: a deficiency of vitamin A, absence of animal protein, excess of earth phosphates and possibly a toxic action on the urinary tract. The findings seem to corroborate the observation of Lujmaki (1936) that stone in the bladder and kidney can be produced in rat by feeding synthetic diets deficient in vitamin A for long interval.

III. BY L. SANFORD M.D.

Stevens W. E. Diseases and Abnormalities of the Female Urethra. *Clinical and Experimental Medicine* 1927, 25, 4.

Stevens emphasizes the frequency with which pathological conditions are found in the female urethra and the necessity for a careful examination of this organ in the presence of symptoms referable to the urinary tract.

If possible the urine should be retained for several hours before the examination. The meatus is cleansed with sterile gauze and pressure then made upon it. Any discharge obtained in this way is examined. The urethra is then carefully palpated and milked from behind forward and any secretion appearing at the meatus is examined.

Following thorough douching of the vagina and cleansing of the vulva the urine is passed into two glasses.

The urethra is next calibrated with olive-tipped bougies and examined through a Moore's cystoscope. The Moore's cystoscope is of great value also in the treatment of lesions of the portion of the urinary canal.

After the cystoscopic examination the patient is anesthetized and in the absence of stricture is placed in the knee-chest position for urethroscopy. Stevens uses the McCarthy anterior urethroscope or the Kelly urethroscope and water dilating urethral instruments such as the McCarthy cystoscopy, or the Brown-Buerger universal cystoscope for the deeper portion of the urethra. With these instruments polypoid polyps and other pedunculated growths which may lie against the urethral wall will be seen floating in the field. The detection of chronic urethritis without discharge is a very common condition in women; it is impossible without urethral scope.

Urethritis in the female is usually caused by infection with the gonococcus but may be due also to other organisms such as the colon bacillus.

The urethral glands especially those of Skene are very frequently involved and it is to infection of these structures that prolongation of the disease and its resistance to treatment are usually due.

Hypoplasia and epispadias are rare. Instances of complete and incomplete double urethra have been

reported. Absence of the urethra and atresia of the urethra have been reported but are extremely rare.

Strictures of the urethra are now recognized as important etiological factors in genito-urinary tract disturbances in the female.

The majority of urethral strictures should be treated by gradual dilatation. This procedure best promotes absorption of the constricting exudate. Meotomy, internal urethrotomy or external urethrotomy with resection of scar tissue is sometimes necessary. Many of the hard infiltrations render internal urethrotomy advisable.

The common benign tumors of the female urethra are the polyp, papilloma and caruncle. The malignant tumors are carcinoma and sarcoma. The former is uncommon and the latter very rare.

Because of the shortness of the canal its lack of marked curvature and its distensibility stones are rarely found in the female urethra.

LOUIS GROSS M.D.

Iselin A. Malformation of the Posterior Urethra. A Clinical and Roentgenological Study (Malformation de l'urètre postérieur. Étude clinique et radiologique). *J. de l'École de Médecine* 1926, 22, 493.

A man of 55 years complained of moderate difficulty in urinating. In the morning if he resisted urination for some time he experienced trouble in starting the stream. Exploration with ordinary instruments revealed an elastic obstruction in the posterior urethra. However a sharply angulated sound even of large size entered without difficulty. There was no residual urine.

With the urethroscope two congenital valve-like formations were found in the anterior prethra but examination of the posterior urethra was unsatisfactory. By injecting the urethra with hypodermic anteroposterior and oblique roentgenograms were made. These showed a dilatation of the posterior urethra which ended above in a cul-de-sac. The orifice leading to the bladder was found on the upper anterior wall of the dilatation.

The deformity was believed to be congenital but corresponded to no type heretofore described. As the disturbances produced were slight the treatment was limited to dilatation with sound. The report is supplemented with diagrams and roentgenograms.

ALBERT F. DE CROAT M.D.

## GENITAL ORGANS

Morrisset J. H. A New Technique for Perineal Prostatectomy with Preservation of the External Sphincter. *S. & Gyn. & Obs.* 1927, 21, 671.

Because of variations and difficulties in the technique of perineal prostatectomy incontinence is a complication in a fairly large percentage of cases.

Damage to the internal sphincter prior to operation makes preservation of the external sphincter essential.

of clotted blood and the occurrence of profuse hemorrhage in several instances when the contents were evacuated at operation support the contention of the author that the cysts are occluded at the isthmus.

The symptoms are not characteristic consisting of the presence of a mass with vague pressure symptoms as well as occasional hematic stools. The physical findings are similar to those of the cysts. The treatment consists in resection with sigmoidectomy and right colectomy when resection is impossible.

Ball, S. C. A. S. Renal Hematuria. *J. J. C. S.*  
Am. J. 25: 221, 1921

Hematuria may signify the presence of a tumor or a stone or tubercle or of a chronic interstitial nephritis. The cause of the time interval between the attacks, the cause of the bleeding, the duration, the etiology, the delay in the diagnosis may be said to be the author reports five cases in which no gross pathological calculus was evident at operation but retrograde pyelitis was well demonstrated.

WILLIAMS, H. V. M.D.

Lambert, W. J. The Operative Treatment of Deep Rectal Stones (Lectures). *Trans. Am. Urol. Assn.*  
1915, 252

The author cites a number of cases illustrating how severe renal changes such as pyonephrosis and renal atrophy may develop in the presence of a ureteral stone which is a long time the stone itself may cause no symptoms to arouse suspicion. He views of this conservative interference should not be too long delayed when conservative measures fail to remove a ureteral stone.

For the operative removal of ureteral stones which because of anatomical correlation usually remain in the lower part of the ureter and are juxtaposed to the intramural a large number of procedures have been devised but at the present time the minimal retroperitoneal route is usually employed. In many cases this route is successful but if the patient is obese and there are perireteral changes the exposure of the ureter is difficult. The peritoneum may be easily injured and the operative risk is great. Moreover, the incision of the ureter is not always without unfavorable sequelae and perireteral adhesions may lead to renewed trouble.

The author recommends the transvesical route consisting in high section with slitting of the roof of the ureterovesical sinus for a distance of about 4 mm and incision of the tumor so that it will permit the introduction of a No. 18 (Charrière) sound. No force is necessary in the extrusion of the stone. If the stone cannot be grasped at the time of the operation its spontaneous expulsion after from eight to fourteen days may be expected. Spontaneous expulsion is favored by placing the bladder at rest by means of a suprapubic catheter. When

care is taken in making the incision there will be no danger of a perforating wound.

Observation based on an extensive material have demonstrated that the incision of the tumor has no unfavorable effect on its function.

The author reports ten cases which were cured by this method.  
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## BLADDER URETHRA AND PENIS

Blatt, I. N. Cystography and the Bladder and Advanced Method of Diagnosis of Tuberculosis of the Genito-Urinary System. Preliminary Report of Investigation. *J. Urol.* 27: 2, 4.

The author describes the pathologic changes occurring in the bladder in renal tuberculosis. He explains the causative factors of spilling of the bladder and the deformities noted in cystography of the tuberculous bladder and ureters.

If glycolic acid urine and the product of tuberculous metabolism are strong irritants causing increased muscular activity of the ureter and bladder. The increased activity causes a hyperemia and the hyperemia favors penetration of the irritating products through the mucous membrane. Thus penetration occurs. In turn a dilatation of the capillaries in the muscularis. This dilatation results in complete stasis with cellular infiltration and proliferation of the elements and degeneration of the muscle tissue. The muscle tissue becomes weakened in its function and in time displaced by fibrous tissue. The ultimate pathological picture is that of infiltration, dilatation and rigidity of the ureter wall, shortening of the ureter, retraction of the ureteral orifice producing the so-called golf hole appearance, a local infiltration organization and fibrosis of the bladder wall on the affected side producing the typical "lure bladder".

The picture of the bladder peristalsis after a nephrectomy and ureterectomy is also seen even after two years when from its appearance and the patient's condition the bladder seems to be entirely free from tuberculosis.

J. S. L. RITTER, M.D.

McCarriso, R. I. The Experimental Production of Stone in the Bladder. *P. M. J.* 9: 7.

In experiment it is carried out to study the formation of stones in the bladder a large number of rats were placed on a diet lacking protein of animal origin deficient in Vitamin A and containing an excess of earth phosphates. The rats were sacrificed at various intervals. No calculi were found in the urinary tracts of a male killed before the fifty-sixth day. Of seventy-two rats fed on this diet for over fifty-six days, twenty-one (29 per cent) were found to have calculi in the bladder. Chemical examination showed the calculi consist mainly of earth phosphates (calcium and magnesium) with traces of calcium oxalate. The stones were single or multiple in one case there were five.

phatic area is apparently efficacious in cases of seminoma even when abdominal metastases are present. It is best to irradiate before operation with low voltage to the testicle and high voltage to the abdomen. High voltage irradiation should be repeated two months later following removal of the testicle.

As soon as the patient recovers from the anæsthetic X-ray treatments should be begun. A second course should be given after six weeks.

All patients with metastases who are treated by orchidectomy alone will succumb.

The prognosis in cases of teratoma is unfavorable as the mortality of the radical operation is 12.4 per cent and there is danger of incomplete removal.

It is not uncommon for death to result from metastases in the secondary lymph-bearing area after the primary area has been removed and found negative. **LOTT Goss MD**

# MISCELLANEOUS

**Allemann R.** Leucoplakia of the Urinary Tract  
(Su lal u pl d s n n e) J d l  
méd t k 96 vi 449

In this article the literature on leucoplakia of the urinary tract is reviewed. Mention is made of the various theories regarding the etiology of the condition and of certain classical cases reported in the literature. The author reports three cases of his own.

Leucoplakia has been regarded as secondary to chronic infections. It is believed that any chronic inflammation might be a cause. Nordique and Lavignus found a cause in tuberculosis and lathyrism. La Verghè attributed all cases to syphilis because his cases all responded to anti-syphilitic treatment.

Fosser demonstrated that epithelium of mesodermal origin may become transformed into stratified squamous epithelium and concluded that the specificity of the germ layers is only relative. Ma chand believed that in none of his cases the normal mucosa had been replaced by the ingrowth of the stratified squamous epithelium from a urinary fistula.

Leucoplakia is generally a very chronic disease persisting for many years with periods of frequent and painful urination and often terminal hæmaturia. The urine is relatively clear but frequently contains desquamated cells. These cells contain glycogen, a fact of importance in the diagnosis. Long remissions are frequent. Urinary infection is the common terminal condition and eventually causes death. Lathyrism is also frequent. If this clinical picture is borne in mind a diagnosis can be made with a fair degree of certainty even when the leucoplakia is in the upper urinary tract. Cholesteatoma formation in the kidney pelvis has complicated the symptoms by causing retention. Renal pain is frequent. It may be dull and continuous or have the character of the colic due to stone.

A study of cases in the Necker clinic showed that leucoplakia is a primary disease which is com-

plicated by infection only secondarily. The author accepts Lecene's theory that it is the result of overgrowth of ectopic ectoderm. This theory seems warranted by the proximity of the Wolffian duct to the ectoderm in embryonic life.

As malignant transformation of leucoplakia has been frequently observed radical operative treatment is justified. **ALBERT F. DE GROOT MD**

**Illman F.** Pyelovenous Backflow at the Time of Pyelography. *S. G. J. C. Obs.* 927 15 592

Pyelovenous backflow is frequently noted at the time of pyelography. Tubular backflow for a short distance into the papillary ducts also occurs. In the case of pyelovenous backflow radiation into the cortex first appears as a cone or funnel deformity from the base of the pyramids and if the back pressure is sufficient may later show the arching from filled anastomotic venous arches. Radiation into the cortex then appears along the interlobular veins, a picture that never occurs with tubular backflow. In the latter there is a short flush-like radiation from the tip of the papilla into the medulla for a short distance. When unrecognized such pyelovenous and papillary backflow may lead to errors in the interpretation of pyelograms. **C. TRAVERS STEVENS MD**

**Barrington F. J. F.** Affections of Micturition Resulting from Lesion of the Nervous System. *P. R. Soc. Med. Lond.* 97 7

The author discusses the anatomy of the nerve supply controlling the bladder and urethra. The hypogastric plexus is formed by the anastomosis of branches of the hypogastric nerve and the pelvic nerve which innervate the bladder and unstriated muscle of the urethra proximal to the compressor urethrae. The pudic nerve gives rise to a branch which supplies the compressor urethrae. These three pairs of nerves containing afferent as well as efferent fibers are concerned with micturition but none of them exclusively with this function.

A review of the literature of work done on dogs and cats showed that stimulation of the spinal cord does not result in contraction of the bladder if both hypogastric and both pelvic nerves are divided, proving that the central nervous system can influence the bladder only through these paths. After section of both hypogastric nerves micturition is performed normally. Whereas division of both pelvic nerves is followed by retention of urine with overflow, the efferent nerves carry the impulses of distress accompanying acute retention since after the division of the nerve the animals show no distress from retention. After a variable period automatic micturition occurs and incontinence ceases but there is a large volume of residual urine. Subsequent division of the hypogastric nerves does not alter the condition. Then if the pudic nerves are divided the automatic micturition ceases and the animal is more or less continually incontinent. It follows that the pudic nerves must carry impulses to the central

The technique described by the author is designed to preserve the external sphincter intact and obviate the necessity of cutting into the membranous urethra. With the patient in an exaggerated lithotomy position the incision is carried deeper in the center and the lateral fasciae are dissected free by blunt dissection. The central tendon is incised sufficiently to allow retraction of the bulb and the transversus perinei muscle is retracted posteriorly. The necessity of cutting into the membranous urethra is obviated by the use of a special prostatic curve retractor. The rectourethralis is dissected free from the prostate and the prostatic capsule is incised with a parallel incision well in the center of each lobe and at a safe distance from the prostatic incision. The lobes are then freed and the removal of the lobes from the prostatic urethra is accomplished. The prostatic capsule is packed with gauze. The levator ani muscles are then brought together and the skin wound is closed with silk worm gut suture.

Perfect urinary control may be expected if this technique is followed carefully.

C. L. W. R. S. P. I. T. A. M. D.

Saunders A. H. and Cooper F. R. A. The Pathology and Treatment of the Retained Testis in Childhood. *J. Urol.* 1927, 20, 805.

The authors discuss the mechanism of descent of the testis and the function and pathology of the retained testis. They draw the following conclusions:

1. The farther the testis descends the more closely it corresponds to the scrotal gland of the same age.

2. The younger the age at which a retained testis is examined the more normal its appearance and characteristics.

3. The undescended testis retains the undifferentiated tubular cells and as in the scrotal organ undergoes further specialization into cells of Sertoli. It is remarkable to find that the cells of Sertoli are very resistant to the continuance of the malposition and are typical even in a fully developed testis. Since the cells of Sertoli persist in retained testes it seems reasonable to suppose that they are trying to preserve the healthy condition of the germ cell.

If the testis is still misplaced at the time that puberty is reached the cells of Sertoli seem to be incapable of preventing atrophic changes in the spermatogenic cells.

4. The interstitial cells of Leydig are apparently not influenced by the abnormal situation of a retained testis.

5. In no case of retained testis examined was there anything of an abnormal nature in the size or structure of the epididymus. In the retained testis the epididymus and testis were more frequently separated by a digital fossa of variable width but a similar condition was observed also in some scrotal testes.

It is now generally agreed that double cryptorchidism is associated in both man and animals with aspermatogenesis but the elaboration of the internal secret on responsible for the production of the secondary sexual characters is complete.

7. The testis may be transplanted into the scrotum. Transplantation is the ideal operation as it places the organ in its natural position and gives it a chance to develop its full function.

8. It appears justifiable to advocate the transplantation of the inguinal retained testis into the scrotum during the first years of life.

WILLIAM S. DEXTER, M.D.

Wesson M. B. The X-Ray and Conservative Surgery in the Treatment of Malignant Tumor of the Testis and Scrotum. *Clin. Surg.* 1927, 2, 648.

Wesson gives a preliminary report of the treatment of four cases of seminoma of the testicle treated by orchidectomy and deep therapy (one case without complete treatment) and of a very rare sarcoma of the scrotal raphe.

Sexual activity may be a factor in the etiology of such tumors as the majority developed between the ages of 20 and 40 years, the period of greatest sexual vigor. Undescended testicles in the inguinal canal subject to frequent bruising against the pubic bone are more prone to become cancerous than those in the scrotum. This is the only real evidence that trauma may be of etiologic importance.

Clinical recognition is primarily a matter of exclusion as the tumors present no pathognomonic signs or symptoms.

The presence of a positive Wassermann reaction and an enlarged testicle does not necessarily indicate gumma. If intensive anti-syphilitic treatment does not cause the immediate disappearance of the tumor exploration is indicated.

All swelling of the testicle must be considered malignant until they are proved benign. Hence immediate surgical exploration is indicated in all doubtful cases.

The treatment is of three types: (1) simple castration; (2) radical operation for teratoma; and (3) castration and radiation for seminoma.

Simple castration is justifiable only in cases of benign tumor. It is never justified in case of malignant tumor. Orchidectomy is always effective when there are no metastases but metastases may occur with the beginning of tumor growth and quickly pass through the primary field into the lymph glands to the opposite primary field or into the inoperable secondary field.

The three objections urged against the radical operation are the impossibility of removing the lymphatic field completely without causing grave injury to vital structures, the high operative mortality and the risk of operation when in so many cases the tissue removed shows no metastases.

Simple orchidectomy with high ligation of the cord followed by thorough irradiation of the lymphatic field

le ion may be present simultaneously. Much information may be gained from the history regarding the type of the hamaturia, its persistence, its frequency, its amount, and its relation to other symptoms.

Cystoscopy is most valuable during the period of bleeding as it will show whether the blood comes from the bladder or the kidneys. The abnormalities observed around the ureteral meatus indicate the side on which a renal lesion is situated. If the bladder appears normal, other methods of investigation are necessary.

The assistance of roentgenography should be sought first. The X-ray will show the presence of a calculus or any other abnormality capable of casting a shadow. The entire urinary tract should be included in the roentgenogram.

Foreign material in the appendix and calyces areous lymphatic glands lying along the course of the ureter or in the mesentery are frequently responsible for erroneous diagnoses of calculus. In such cases manipulation of the abdomen during the roentgenographic examination or even a change in the patient's position may reveal a degree of mobility in the shadow which would be impossible if it was cast by a calculus in the urinary tract. Pelvic phleboliths are also commonly demonstrated in roentgenography. A single shadow associated with hamaturia suggests a stone.

Whenever a shadow of doubtful nature is presented the introduction of an opaque ureteral bougie will show its relationship to the course of the ureter or the renal pelvis, especially in a stereoscopic picture. Blockage of the passage of the bougie may be due to a calculus. If the bougie can be passed and does not displace the shadow, the latter may be due to a calcareous gland adherent to the ureter. The injection of sodium bromide through a ureteral catheter will distend the ureter and renal pelvis and thereby show a shadow in the renal pelvis or ureter or a situation of the former or a dilatation of the latter. It will demonstrate also the relationship of any shadow caused by lesions outside the tract. Its distance from the ureteral wall may indicate a possible cause of the hamaturia.

Some stones are not demonstrable by roentgenography. Among these are the pure uric acid stones. Renal stones lie within the pelvis of the kidney or in the calyx and cause symptoms chiefly through distension of the calyxes without altering the shape of the pelvis. Thus ballooning of the calyces is characteristic. Pyelographic shadow is due to obstruction of the ureter or renal pelvis by some lesion outside of the tract demonstrating distention of the renal pelvis without involvement of the calyces as in movable kidney, congenital hydronephrosis, hydronephrosis due to aberrant vessels, and even strictures or deformities of the ureter from the adhesion of calcareous glands or the appendix.

It is emphasized that in cases of multiple calculi a roentgenogram may not show all of the stones that are present.

Severe hamaturia is suggestive of a neoplasm, especially if the bleeding is unilateral. Simple roentgenography may reveal a large kidney. In the absence of bleeding, an investigation of both kidneys may be necessary. Even in the early stages, growths of the renal parenchyma have a tendency to bulge into the renal pelvis rather than to extrude from the kidney surface, thereby splaying out and elongating the calyces in a Y-shaped form. In the later stages, growths of the renal pelvis tend to fill up the pelvis and prevent the introduction of fluid. In the early stages, an irregular filling defect is suggestive of a papilliferous growth. Sometimes such growths are seen in the bladder on cystoscopic examination.

In addition to the bleeding, there may be pyuria due to the causes mentioned. The isolation of the infecting bacteria is necessary. The nature of the micro-organism may indicate the type of the renal lesion. The renal lesion may be secondary or primary. The finding of the staphylococcus pyogenes aureus may indicate a renal infarct secondary to furunculosis. Typhoid infections are common. The finding of the tubercle bacillus or a positive inoculation test for tuberculosis may reveal the nature of the condition.

Bilateral renal tuberculosis is not amenable to surgery, but in unilateral involvement surgery is possible. Cystoscopy is an important aid in determining whether the condition is unilateral or bilateral. It will reveal congestion, tubercles, ulcers, edema, dragging of the ureteral orifice upward, or rigidity of the margins of one ureter. Bilateral involvement of the ureters does not necessarily indicate bilateral renal involvement; a later examination after a period of rest may show only unilateral involvement. Occasionally the bacilli are found in the absence of any indication of the side of the involvement. Catheterization gives the necessary proof: the presence of a purulent sterile urine on one side only may serve as an indicator. Roentgenography may reveal caseous or calcareous deposits. Pyelography may be tried but is not entirely harmless. It may show an irregularly shaped calyx or an irregular margin to the renal pelvis. If all of these investigations fail, renal functional tests may be applied to each kidney. In the absence of macroscopic lesions, however, the diagnosis of the site of a tuberculous focus in the urinary tract is very difficult.

Acute non-tuberculous infections of the urinary tract are usually diagnosed easily. When there is kidney involvement, the vesical symptoms are the most evident, but in some cases there may be few symptoms except fever and urinary infection determinable by urinalysis. Bilateral infection is presumable evidence of a generalized infection, but obstructive lesions such as enlargement of the prostate, urethral stricture, fibroids, pregnancy, or inflammation of the tubes should first be eliminated as causes. A unilateral infection, although possibly of like origin, is usually due to some localizing factor. The obstructive lesion, however, is not always

nervous system which produce the convulsive desire to micturate.

Clinically a loss of function of the pelvic nerves producing the syndrome described arises not uncommonly after laceration often in incarceration of a gravid uterus and occurs usually following pelvic operations particularly excision of the rectum. In the two former conditions there is no interruption of continuity of the two nerves and recovery occurs after relief of the pressure. In the latter case when the injury has been bilateral pyelonephritis commonly leads to death.

After ligation of the pelvic nerves cats micturate as before but they have more or less incontinence evidenced by the escape of a few drops of urine when they make a transient muscular effort or an operation injuring these nerves causes an external urethral fistula may produce such an incontinence but it is not definite. When the proximal urethra is destroyed during suprapubic prostatectomy and a catheter is inserted suprapurically any perineal procedure after either of these which involves the compressor urethra is likely to be followed by permanent incontinence.

A proximal atresia occurring simultaneously is a fairly frequent complication of central nervous lesions in man involving the pelvic nerves or the origin where the urine is held only by the compressor urethrae subject to the opening of the prostatic ducts to intravesical pressure. The same is true of urethral atresia. It is very rare in the absence of enlargement of the prostate because the opening of the prostatic ducts are fatal to the obstruction.

During the time experimental work all of the lumbosacral roots were ligated. This resulted in retention of urine with overflow incontinence. Lesions of the mucous membrane of the bladder occur often with hamaturia. The urethra remains contracted firmly contracted. The urine only passes away and is not passed voluntarily in jets. This condition is found in rabbits and if the disease is complicated by a prostatic abscess perineal drainage will result in an external fistula due to the pressure of the urine in the bladder a condition that can be sealed with only by a permanent suprapubic cystostomy.

Other experimental observation on micturition have been successfully performed on the rat. If the bladder is distended with water a reflex micturition occurs. It can occur spontaneously with out any appreciable residual urine if the animal is kept alive by careful removal of a sufficient length of time. Micturition will take place then in the absence of the parts of the brain in front of the fully constant phase of decerebration which goes through the superior olivary nucleus and through the crura at the superior origin of the third nerves ventrally.

The paths of the micturition reflexes were determined in the rat by tying a cannula into each of the urethra divided primarily to the compressor urethra and observing the varying

conditions by means of a water manometer connected with each cannula. Micturition was found to be composed of reflexes as follows:

1. Distention of the bladder gives rise to strong contraction of the bladder. Both efferent and afferent paths are in the pelvic nerves and the reflex is situated in the bladder.

2. Running water through the urethra gives rise to strong contraction of the bladder. The efferent path is in the pelvic nerve the afferent in the pudendal nerve and the reflex is in the bladder.

3. Distention of the urethra between the internal meatus and compressor urethra gives rise to weak contraction of the bladder. Both efferent and afferent paths are in the hypogastric nerves and the reflex is in the cord.

4. Running water through the urethra gives rise to relaxation of the urethra. Both paths are in the pudendal nerve and the reflex is in the cord.

5. Distention of the bladder gives rise to relaxation of the urethra. The efferent path is in the pudendal nerve the afferent in the pelvic and the reflex is in the cord.

The author gives a list of physiology of general position of the relation of these reflexes and their clinical application.

The efferent paths of micturition are in the dorsal parts of the lateral columns of the spinal cord. As micturition is affected in all suprapubic diagnostic errors may occur if the patient happens also to have an enlarged prostate.

The micturition centers in the hind brain of the cat were found by means of the electrocortic instrument of Clarke. They are located at the anterior end of the hind brain just ventral to the internal angles of the superior cerebellar peduncles. In man pontine gliomata may affect the micturition center.

The article contains a comprehensive bibliography.

J. L. K. F. T. K. M. D.

Ball W. C. The Value of M. Jern Method of Investigation in the Diagnosis and Treatment of Hamaturia. J. Urol. 1917, 473.

In hamaturia the bleeding may be microscopic severe enough to discolor the urine. When the urine is discolored the microscope should be used to determine whether the discoloration is due to blood or some other pigment. When it is due to blood the site of origin of the bleeding must be determined. Conclusions as to origin from gross position of the urine and the three glass test are often inaccurate. The cessation of the bleeding after irrigation of the bladder suggests that a renal lesion is responsible where persistence of the bleeding indicates that the cause is local. The passage of blood in the urine (ureteric catheter) suggests that the bleeding is of renal origin. (Catheter constitution of the bladder is of renal origin.) In hamaturia it is ruled out by the test of renal function examination of arterial blood urea levels on hamaturia scurvy etc. It must be borne in mind however that both a constitutional disease and a local genital urinary



# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Meyerding H. W. Exostosis. *R. D. J.* 1917, 1, 42

The author emphasizes the value of roentgenograms taken at right angles to determine the exact size, site and structure of a tumor of bone. Experience of roentgenologists can accurately diagnose an osteochondroma commonly termed exostosis. By means of roentgenograms valuable information as to the relationship of the tumor to surrounding important structures is obtained and the differentiation of local and generalized types of benign and malignant tumors is possible. The amount of bone and cartilage in the tumors varies considerably. Usually there is a cartilaginous cauliflower-like head surrounded by a bursa which when injected suddenly enlarges. This enlargement is not infrequently taken for rapid growth of the tumor and sometimes for malignancy.

Meyerding has rearranged the classification adopted by the Clinical Pathological Association and the Sarcoma Registry so as to lead from the simple inflammatory lesions to the malignant and metastatic groups.

A series of 263 cases of exostosis observed and treated at the Mayo Clinic is reviewed. The diagnoses were verified by pathologists. The average age of the patients was 27 years. One hundred and fifty patients were males. Although heredity is an acknowledged etiological factor in exostosis attention is directed to the small percentage of the patients in this group who gave a positive history. Only four of them had noted similar conditions in their families. Twelve gave a history of arthritis. Other identical lesions were rare. Thirty-nine per cent gave a history of injury in the region of the growth but in the author's opinion the injury merely called attention to a pre-existing tumor which had not been noted. Meyerding believes that hereditary and metabolic disturbances in childhood are the most important factors and that trauma is of less importance than the histories suggest.

The age incidence of exostosis is similar to that of osteoma of the long bone—practically 80 per cent of exostoses and 85 per cent of bone sarcomata occurring between the ages of 11 and 40 years. The distribution is also similar. This similarity is shown in a diagram. The tumors in each group are most common about the knee and humerus especially in the lower end of the femur and the upper end of the humerus. In the cases of exostosis reviewed 15 of 16 tumors were found in the femur, thirty-four in the tibia, thirty in the humerus, and twenty-six in the foot.

The symptoms were usually a painless swelling and deformity. Stiffness of the joints was rare. Forty-five of the patients complained of dull pain which occasionally became sharp. The Wassermann reaction was positive in only two of 189 cases. Usually slight tenderness was elicited on firm pressure. The skin was freely movable because of the formation of bursae. There was no local heat and venous congestion was rare. The tumors were usually hard and fixed.

According to the roentgenographic findings of exostosis the cortical point of origin is in the diaphysis near the epiphyseal line most commonly in the lower end of the femur and the upper end of the tibia and humerus. The base of the tumor varies from a narrow to a broad pedicle and the tumor ranges from a bony projection to a pedunculated mass of varying size. The cortex of the bone and the pedicle of the tumor may appear to be continuous. A cartilaginous cap is common frequently this has a cauliflower-like appearance. Inflamed bursae may produce distended sacs. The tumors may be local or general. There is penetration rather than invasion of tissue. No absorption of bone occurs unless there is pressure on neighboring structures. The periosteum is expanded over the tumor which usually occurs away from the joints.

The treatment of these tumors is surgical when their presence causes deformity or pain. Cauterization of the base and the use of a rubber tissue drain is advisable. In cases of simple tumors the prognosis is good. Of the patients heard from after being dismissed from observation 75 per cent reported themselves cured. There was no surgical mortality.

Hadjopoulos L. G. and Burbank R. A. Preliminary Study Bearing on the Specific Causative Factors of Multiple Infective Arthritis. *J. B. - J. S.* 1927, 1, 278

Experimentation on animals with the intravenous injection of a variety of streptococci caused septic joints rather than chronic arthritis. Blood cultures from patients with arthritis were negative but hanging drop preparations from broth cultures showed a streptococcus-like organism.

When an alexin in the freshly drawn blood of a group of patients with arthritis had been neutralized 10 per cent of the cases showed a growth of streptococci. When rabbits, guinea pigs and mice were injected with strains of the isolated streptococci they developed the symptoms of chronic infective arthritis with the usual roentgen ray findings. The primary cause seemed to be a highly selective group of streptococci. A secondary rôle may be played by bacilli and staphylococci. W. P. Bloch, M.D.

lemon trabl as in early hyronephrosis with a movable kidney or an abnormal renal vessel. The acute fact is also may be within the tract or out side of it (appendix or colon).

The diagnosis of essential renal pathologic hematuria is not as common today as formerly since with more accurate means of investigation a mere possible fact such as chronic pyelitis is usually found. However there are still a number of cases of hematuria in which role on can be found in the kidneys. Some cases are explained by the presence of minute cysts. These may be recognized by an observer and finally by another. As a rule such cases are not recognized before operation.

With the advance in technique is has come a corresponding advance in treatment. A stone in the kidney can be effectively removed by percutaneous lithotripsy or by cystostomy as to renal stricture and the availability of nephrectomy. The renal functional test are also of great value in prostatic enlargement. The finding of hyronephrosis renal cysts in titate earlier intervention so that some of the kidneys may be saved by timely operation. For pyelitis renal pelvis the diagnosis of malignancy is difficult. The intracavitary procedures such as lithotripsy the fulguration of villous tumors the papillotomy of the excretory duct of uterine calculus and lithotripsy procedures for the destruction of portions of the prostate have reduced the operative mortality of these conditions.

I. A. NEWMAN M.D.

Letter 1141 The Cancer of Urinary Bladder  
Cheng Ching 1940

Letter 1142 While the cancer of urinary bladder is still simple there are instances which tax the resources of the most skillful surgeon. Clipping power may be at fault. There may be a

deficiency of calcium prothrombin platelets or tissue juice so called thrombokinase. If calcium is lacking as for example in the case of jaundice the administration of 10 ccm of 10 per cent calcium chloride intravenously on three successive days will restore the clotting power. The common practice of giving calcium lactate by mouth is ineffective because little of the calcium so given is absorbed. In hemophilia and other conditions lacking in purpura the platelets are deficient. These may be supplied only by blood or tissue juice from another person.

The clotting power may be raised above the normal by increasing the thrombokinase locally or generally. It may be done locally by queening out the patient's own tissue juices (Kreyer advises massaging the prostatic capsule after enucleation) by heat by transpluting muclous or by applying cephalin or thromboplastin. For general action the cephalin or thromboplastin may be injected subcutaneously.

In all cases of serious hemorrhage blood transfusion is indicated both to replace the loss of blood and to promote clotting. Unfavorable reactions are few following the use of whole blood.

In lacerations from pellets the injection of silver nitrate solution up to 5 per cent is effective if combined with the elimination of local infection and the correction of faulty drainage.

In cases of bleeding from the lower urinary tract in which the lesion cannot be removed at the use of the indwelling catheter continuous two-way irrigation with a 1:5000 silver nitrate solution and fulguration or diathermy are to be considered. In spite of its limitations in the cure of malignancy the bladder and prostate radium is invaluable for the arrest of hemorrhage. Deep X-ray therapy is also of value.

LEWIS GRASS M.D.

dig t from a eptic chemi al ne rosis Up to the pre ent time about sixty cases have been reported the majority of them being in Germany and Austria The condition was first described by Erdheim in 1920

The lesion is e sentially a necrosis from the action of the methyl violet dye which is present in the form of the broken-off point of the pencil or as tiny particle which were scattered through the tissues either at the time of the injury or in attempts to extract the pencil point with forceps The necrosis is aseptic no organisms have been cultured from the lesion There is a zone of cellular disintegration surrounded by a zone of oedema in which only a very slight leucocytic infiltration can be seen

Erdheim Grass Kru er Torra a and others have done some experimental work on the effect of the dye on the tissues They found that its action is not stopped by the simple removal of the small bit of the pencil point in the tissues As long as any colorant is present the necrosis continues

The condition becomes manifest a variable time after the accident Following the removal of the foreign matter the wound will not heal the sutures separate and allow the discharge of a clear blue serum In some cases the cellular destruction goes on under the skin until there is a collection of blue fluid which produces a fistulous track through the skin If radical treatment is not given the necrosis involves the tendon aponeurosis and bone

A rule there is not much general reaction and the condition tends to remain localized but German surgeons have described a mild general reaction characterized by a short period of malaise fatigue loss of appetite and headache G rtenmeier reported a case in which jaundice without gastrointestinal symptoms developed one and a half months after the patient left the hospital The coloration is most apparent in the conjunctivæ and is associated with a fever of 101.3 to 102.2 degrees F and a slight leucocytosis The reaction was attributed to the action of the aniline dye on the skin

If the condition is untreated the loss of the finger results

Glas ha reported two cases of necrotizing panaritium a similar condition due to aniline dye The patients were young women who had dipped their hands into a dye bath with their bare hands The dye had entered the tissues through minute scratches in the skin at the base of the nails

The treatment of an aniline dye poisoning is surgical All of the tissue colored blue by the dye must be removed The periphery of the wound which shows a blue color is just as dangerous as the original foreign matter If the bone has been affected and is colored it must be curetted After the operation on the bone the use of the ultraviolet rays may be effective

Iselin reports a case of his own and reviews a number of others

MICHAEL L. MASON, M.D.

Kahn M and Cohn L C The Diagnosis and Treatment of Bone Lesions of the Hand and Foot with Special Reference to Bone Tumors  
Radiology 19 7 1 239

This article is based on the histories roentgenograms and gross and microscopic specimens of eighty nine cases of bone lesions of the hand and foot seen at the Johns Hopkins Hospital Baltimore The pathological diagnosis in sixty five cases was osteosarcoma in twenty eight chondroma in eleven giant cell tumor in eight myxoma in six osteitis fibrosa in four sarcoma in two osteomyelitis in two epithelial lined cyst in two hemangioma in one and ossifying hematoma in one

The diagnosis of the largest group the exostoses or osteomata is rarely difficult In osteomyelitis of the hand or foot the findings are the same as in osteomyelitis elsewhere in the body Epithelial lined cyst hemangioma and ossifying hematoma present no positive clinical picture nor characteristic roentgen appearance The recognized infrequency of sarcoma distal to the wrist and ankle was again demonstrated in this study Attention is called to the fact that chondroma myxoma giant cell tumor and osteitis fibrosa give no characteristic roentgen findings upon which a positive diagnosis can be based From the standpoint of treatment it is especially important that myxoma be recognized by the surgeon as the use of the cautery offers practically the only chance for the cure of this tumor

WOLFE HARTUNG, M.D.

Cochrane W A A Consideration of Backache from the Orthopedic Standpoint Ed by G H M J 19 7 21 Med Ch Soc Edinburg 61

Cochrane W A A Demonstration of Method of Examination of Cases of Back Strain Ed by G H M J 29 221 Med Ch Soc Edinburg 79

Cochrane considers industrial back injuries from the following six angles

1 The anatomical type of the subject The slender hypermobile pines with small vertebrae and flat articular facets cannot withstand the stress of heavy work They frequently have a high fifth lumbar vertebra or six lumbar vertebrae

2 Back pain arising during light or heavy work in persons who use the body in positions of mechanical disadvantage In these the important factor is often the chronic lumbosacral or sacro iliac strain of poor posture In acute traumatic sacro iliac strain any displacement is in the nature of a rotation which if it is revealed in the roentgenogram at all appears as an asymmetry at the pubis

3 Persistent pain in the lumbosacro iliac region when the roentgenogram reveals no evidence of a gross lesion Most of the cases are due to persistent extrinsic lesions i.e. muscles or aponeurotic strains

4 Disproportionate pain induced by trauma to a spine with a pre-existing symptomless arthritis

5 Anatomical variations in the lumbosacro iliac

Hibbs R. A. Some Aspects of the Problem of Joint Tuberculosis. *South Med J* 1927 20: 278

The New York Orthopedic Dispensary and Hospital with its Country Branch established twenty two years ago is particularly well fitted for the long time treatment and study of cases of joint tuberculosis.

Hibbs had made an end result study of twenty seven cases of knee joint tuberculosis in which were treated at the Country Branch and have been under observation for from five to fifteen years. In 3 per cent of these an incorrect diagnosis was made and in seven cases death occurred from some other form of tuberculosis. In forty three of the knees the condition became quiescent but in sixteen it again became active. Of the twenty seven in which it remained inactive the joint is stiff in five and has varying degrees of motion in twenty two. The final result of the conservative treatment in thirty three cases was active disease. Sixteen of the patients were subjected subsequently to operative fusion of the knee and then remained free from symptoms.

The average length of conservative treatment in these seventy-seven cases was a year and a half years and the average period of observation as fifteen years.

The results of conservative treatment of tuberculosis of the hip at the Country Branch are still less favorable. In the period from 1904 to 1921 203 cases were treated. Errors in diagnosis were made in forty six cases. One hundred and fifty patients were observed for from three to fifteen years. Of this number thirty six died, twenty from tuberculosis, six from other causes and six from causes unknown. Of the 114 other cases the condition is still active in seventeen, quiescent with free motion in two and quiescent with limited motion and varying degrees of deformity in forty-one. The average duration of treatment in these 114 cases was seven and three tenths years. In eighty cases an operation for hip fusion was done and a cure obtained in a high percentage. Tuberculosis of the joints of the upper extremities has a better prognosis as these joints are subjected to less traumatism than those of the lower extremities.

This study seems to offer convincing evidence that our conception of the cure of joint tuberculosis must be revised and our methods of diagnosis perfected. Most of the studies made upon the end results in the treatment of this disease are unreliable because of errors in diagnosis and because of failure to observe the cases over a long period of time. In cases that have been classified as cured a relapse may occur ten, fifteen and twenty years after the discontinuance of treatment.

In the author's opinion there is no evidence as yet to prove that heliotherapy has a particular favorable influence upon the progress of the disease and the belief that it does may delay the proper study of the condition for some time.

NORMAN C. BULLOCK, M.D.

Carran and Iecène. Two Cases of Rupture of the Tendon of the Long Head of the Biceps (Dixons's rupture of long biceps). *British Medical Society* 1917 1: 361

This article reports two cases of rupture of the tendon of the long head of the biceps, one of which was treated surgically. The surgically treated case was that of a man 63 years of age who while engaged in heavy work to which he was not accustomed suddenly experienced a marked diminution of the power of flexion of his right forearm. Examination sixteen days later revealed a small area of ecchymosis on the outer and upper surface of the arm and another on the medial and inferior surface. The short head of the biceps seemed abnormally prominent while the long head was retracted and lost in a voluminous mass in the lower portion of the arm. In the region normally occupied by the long head of the biceps there was a longitudinal groove in the depth of which the humerus could be palpated. In the lower portion of the groove there was a tender, immovable cigar-shaped mass which evidently represented the tendon of the long head with contracted secondary attachments.

As the loss of strength was sufficient to interfere with the patient's work, operation was believed to be indicated. An incision was made along the anterior border of the deltoid directly over the abnormal depression referred to. The tendon was found to have retracted out of the intertubercular groove and to be doubled back on itself. The end of the tendon was soft and white, having the appearance of an artificial foreign body. To discover the upper segment of the tendon, a very small incision was made through the deltoid and directly between the greater and lesser tubercles. As the intertubercular groove, this point contained only a very small fibrous strand the rupture was evidently intra-articular. By means of a forceps passed through the upper incision and the tendon sheath the tendon was drawn up between the tubercles where the end was sutured to the fibrous tissue on the anterior lip of the groove. A loop made by picking up the tendon was then sutured to the aponeurotic investment of the deltoid. This gave to the tendon its normal tension.

The patient made an uneventful recovery with almost complete restoration of function.

The other case reported was of a man 62 years old. The rupture of the tendon occurred while the patient was running an automobile. The physical findings were similar to those in the first case but as the disability was only slight no treatment was given.

ALFRED DE G. T. M.D.

Iselin M. Injuries of the Hand and Fingers from Indefensible Pencils. Aniline Dye (Lebensmittel) (a main text) 1917 1: 361

Injuries of the fingers from aniline (indehble) pencils although not very common are important as incorrect treatment may result in the loss of the



region in relation to excellent an injury to the back. An asymmetrical arrangement is essentially a poor mechanical arrangement and likely to give out under the strain of heavy work. The commonly existing bursa between an enlarged fifth lumbar transverse process and the top of the acetabulum (a semi-circular) fifth lumbar vertebra is very subject to strain. Incomplete closure of the spinal arches (spondylolisthesis) in the presence of poor body mechanics exacerbate lumbar strain and forward tilting of the pelvis deprives the spine of the support of the impingement of the pinous processes between the fifth and first sacral vertebra thus throwing increased strain on the locked home acetabular joints.

6 The mental problem

Case of back strain are divided into five groups (1) acute traumatic strain 60 per cent (2) general postural strain 30 per cent (3) lumbo-sacral strain 10 per cent (4) acrio-l strain 8 per cent and (5) combine l pelvic joint strain 2 per cent

The conclusion drawn that injury of the back is often only one factor in the problem and that injury and strain are not to be the last link in a chain of physical unsuitability, poor body mechanics and possibly anatomical variations long standing is a cause or fracture of the spine.

In discussing the method of examination which should be employed routinely in cases of back strain, Cochrane emphasizes the importance of an exact history. The patient should be questioned regarding the mode of onset of the condition and its immediate and late symptoms. The chief determinants to be made in the examination are the following:

1. The holy type and the general nature of the holy posture. For a new holy mechanics and posture have an important etiological and prognostic significance. The posture in sacroiliac strains is characteristically

2. **Th lumbar curv.** Th is usu ly exaggerate d in static al n rmaliti s in whi ch there has been no trauma and is flatten d in ca es of intrinsic le ions. It is due to the muscle r aponeuroses

3. Lateral deviations of the column. The cause may be merely attitudinal as from inequality in the length of the legs temporarily and positionally as from muscle spasm or left and right as from structural abnormalities of the feet. An examination for rotation of the spine should also be made.

#### 4. Situation and distribution of pain and tenderness and the resensitization of muscle pain

5 Elements of the pure Flexion elements  
h 1/2 to 1/3 with the patient standing sitting  
and in lateral and ventral recumbency  
Hypermobility occurs in cases of general postural  
strain in persons of the slender type of anatomical  
structure Rigidity in every direction  
points to an anatomical lesion of the spine Asym-  
metrical immobility may be due to an anatomical or  
an extrinsic lesion In lumbar area less flexion

takes place in the hip joints and of the lumbar region while in sacro-lumbar flexion the first flexes the lumbar spine continues the movement by tilting the pelvis until the ham strings become taut and then flexes the knees. In lumbosacral flexion flexion is as limited in the sitting position as in the standing position. Patients with sacro-lumbar flexion can bend forward quite easily as no leverage is transmitted to the pelvis.

6 Other determinations: Muscle atrophy should be noted; the reflexes and sensation tested and roentgenograms made. R: 11/11/44, 12/1/44, 12/15/44, 1/1/45, 1/15/45, 2/1/45, 2/15/45, 3/1/45, 3/15/45, 4/1/45, 4/15/45, 5/1/45, 5/15/45, 6/1/45, 6/15/45, 7/1/45, 7/15/45, 8/1/45, 8/15/45, 9/1/45, 9/15/45, 10/1/45, 10/15/45, 11/1/45, 11/15/45, 12/1/45, 12/15/45, 1/1/46, 1/15/46, 2/1/46, 2/15/46, 3/1/46, 3/15/46, 4/1/46, 4/15/46, 5/1/46, 5/15/46, 6/1/46, 6/15/46, 7/1/46, 7/15/46, 8/1/46, 8/15/46, 9/1/46, 9/15/46, 10/1/46, 10/15/46, 11/1/46, 11/15/46, 12/1/46, 12/15/46, 1/1/47, 1/15/47, 2/1/47, 2/15/47, 3/1/47, 3/15/47, 4/1/47, 4/15/47, 5/1/47, 5/15/47, 6/1/47, 6/15/47, 7/1/47, 7/15/47, 8/1/47, 8/15/47, 9/1/47, 9/15/47, 10/1/47, 10/15/47, 11/1/47, 11/15/47, 12/1/47, 12/15/47, 1/1/48, 1/15/48, 2/1/48, 2/15/48, 3/1/48, 3/15/48, 4/1/48, 4/15/48, 5/1/48, 5/15/48, 6/1/48, 6/15/48, 7/1/48, 7/15/48, 8/1/48, 8/15/48, 9/1/48, 9/15/48, 10/1/48, 10/15/48, 11/1/48, 11/15/48, 12/1/48, 12/15/48, 1/1/49, 1/15/49, 2/1/49, 2/15/49, 3/1/49, 3/15/49, 4/1/49, 4/15/49, 5/1/49, 5/15/49, 6/1/49, 6/15/49, 7/1/49, 7/15/49, 8/1/49, 8/15/49, 9/1/49, 9/15/49, 10/1/49, 10/15/49, 11/1/49, 11/15/49, 12/1/49, 12/15/49, 1/1/50, 1/15/50, 2/1/50, 2/15/50, 3/1/50, 3/15/50, 4/1/50, 4/15/50, 5/1/50, 5/15/50, 6/1/50, 6/15/50, 7/1/50, 7/15/50, 8/1/50, 8/15/50, 9/1/50, 9/15/50, 10/1/50, 10/15/50, 11/1/50, 11/15/50, 12/1/50, 12/15/50, 1/1/51, 1/15/51, 2/1/51, 2/15/51, 3/1/51, 3/15/51, 4/1/51, 4/15/51, 5/1/51, 5/15/51, 6/1/51, 6/15/51, 7/1/51, 7/15/51, 8/1/51, 8/15/51, 9/1/51, 9/15/51, 10/1/51, 10/15/51, 11/1/51, 11/15/51, 12/1/51, 12/15/51, 1/1/52, 1/15/52, 2/1/52, 2/15/52, 3/1/52, 3/15/52, 4/1/52, 4/15/52, 5/1/52, 5/15/52, 6/1/52, 6/15/52, 7/1/52, 7/15/52, 8/1/52, 8/15/52, 9/1/52, 9/15/52, 10/1/52, 10/15/52, 11/1/52, 11/15/52, 12/1/52, 12/15/52, 1/1/53, 1/15/53, 2/1/53, 2/15/53, 3/1/53, 3/15/53, 4/1/53, 4/15/53, 5/1/53, 5/15/53, 6/1/53, 6/15/53, 7/1/53, 7/15/53, 8/1/53, 8/15/53, 9/1/53, 9/15/53, 10/1/53, 10/15/53, 11/1/53, 11/15/53, 12/1/53, 12/15/53, 1/1/54, 1/15/54, 2/1/54, 2/15/54, 3/1/54, 3/15/54, 4/1/54, 4/15/54, 5/1/54, 5/15/54, 6/1/54, 6/15/54, 7/1/54, 7/15/54, 8/1/54, 8/15/54, 9/1/54, 9/15/54, 10/1/54, 10/15/54, 11/1/54, 11/15/54, 12/1/54, 12/15/54, 1/1/55, 1/15/55, 2/1/55, 2/15/55, 3/1/55, 3/15/55, 4/1/55, 4/15/55, 5/1/55, 5/15/55, 6/1/55, 6/15/55, 7/1/55, 7/15/55, 8/1/55, 8/15/55, 9/1/55, 9/15/55, 10/1/55, 10/15/55, 11/1/55, 11/15/55, 12/1/55, 12/15/55, 1/1/56, 1/15/56, 2/1/56, 2/15/56, 3/1/56, 3/15/56, 4/1/56, 4/15/56, 5/1/56, 5/15/56, 6/1/56, 6/15/56, 7/1/56, 7/15/56, 8/1/56, 8/15/56, 9/1/56, 9/15/56, 10/1/56, 10/15/56, 11/1/56, 11/15/56, 12/1/56, 12/15/56, 1/1/57, 1/15/57, 2/1/57, 2/15/57, 3/1/57, 3/15/57, 4/1/57, 4/15/57, 5/1/57, 5/15/57, 6/1/57, 6/15/57, 7/1/57, 7/15/57, 8/1/57, 8/15/57, 9/1/57, 9/15/57, 10/1/57, 10/15/57, 11/1/57, 11/15/57, 12/1/57, 12/15/57, 1/1/58, 1/15/58, 2/1/58, 2/15/58, 3/1/58, 3/15/58, 4/1/58, 4/15/58, 5/1/58, 5/15/58, 6/1/58, 6/15/58, 7/1/58, 7/15/58, 8/1/58, 8/15/58, 9/1/58, 9/15/58, 10/1/58, 10/15/58, 11/1/58, 11/15/58, 12/1/58, 12/15/58, 1/1/59, 1/15/59, 2/1/59, 2/15/59, 3/1/59, 3/15/59, 4/1/59, 4/15/59, 5/1/59, 5/15/59, 6/1/59, 6/15/59, 7/1/59, 7/15/59, 8/1/59, 8/15/59, 9/1/59, 9/15/59, 10/1/59, 10/15/59, 11/1/59, 11/15/59, 12/1/59, 12/15/59, 1/1/60, 1/15/60, 2/1/60, 2/15/60, 3/1/60, 3/15/60, 4/1/60, 4/15/60, 5/1/60, 5/15/60, 6/1/60, 6/15/60, 7/1/60, 7/15/60, 8/1/60, 8/15/60, 9/1/60, 9/15/60, 10/1/60, 10/15/60, 11/1/60, 11/15/60, 12/1/60, 12/15/60, 1/1/61, 1/15/61, 2/1/61, 2/15/61, 3/1/61, 3/15/61, 4/1/61, 4/15/61, 5/1/61, 5/15/61, 6/1/61, 6/15/61, 7/1/61, 7/15/61, 8/1/61, 8/15/61, 9/1/61, 9/15/61, 10/1/61, 10/15/61, 11/1/61, 11/15/61, 12/1/61, 12/15/61, 1/1/62, 1/15/62, 2/1/62, 2/15/62, 3/1/62, 3/15/62, 4/1/62, 4/15/62, 5/1/62, 5/15/62, 6/1/62, 6/15/62, 7/1/62, 7/15/62, 8/1/62, 8/15/62, 9/1/62, 9/15/62, 10/1/62, 10/15/62, 11/1/62, 11/15/62, 12/1/62, 12/15/62, 1/1/63, 1/15/63, 2/1/63, 2/15/63, 3/1/63, 3/15/63, 4/1/63, 4/15/63, 5/1/63, 5/15/63, 6/1/63, 6/15/63, 7/1/63, 7/15/63, 8/1/63, 8/15/63, 9/1/63, 9/15/63, 10/1/63, 10/15/63, 11/1/63, 11/15/63, 12/1/63, 12/15/63, 1/1/64, 1/15/64, 2/1/64, 2/15/64, 3/1/64, 3/15/

Herndon R F Back Injury in Industrial  
Empl yees J R - J 15 1 9 11

Here! n reviews 441 cases of back injury in industrial employees. Sprain occurred in 408 cases (93 per cent). Two thirds of the sprains occurred in the lumbar sacral region and about a fourth in the middle and upper lumbar region. About half seemed to be unilateral while the other half were located centrally. The average period of disability in the 410 cases in which it is known was five weeks. This showed a steady increase from one week in cases of all lesions to eleven weeks in case of sacroiliac lesion. There was also a progressive increase in the period of disability according to the age of the patient.

Confusions occurred in 122 cases (13 per cent). The average period of disability was about one week.

Fracture of the vertebral processes occurs in forty-one cases (4 per cent). In thirty six the fracture involved one or more of the lumbar transverse processes. Fractures involving the third vertebra were the most common. In about half of the cases the fracture was due to abnormal muscular pull and in about half to direct violence. In the former almost all of the fragments were widely separated while in the latter more than appreciable displacement as a rule was without much displacement and evidence of callus formation and union after from one to three months. In six cases in which the portion of the body was involved the average time for union was

Structure of the sentence: I see a use in  
thrusting (3 per cent) as 80 per cent of the  
ausing the fracture as applied in the  
patient has been taken on the back while he  
was in a stooped position. In the third of the  
cases there was no history of laceration  
in the chest. In patients with more than  
a third are known to have been in the  
contact labor in the mines. It is the  
proportion of ability to know it age thirty  
four years.

Chronic deformity g arthr t a f u l l y r o y  
cases (11 per cent) Spin i c l a e l a m a g e d  
structu e th m t i n n l through l m t d a r  
l g h t i n j u r i e s e m c a p a b l e o f i n c r e a s e t h e l o r a l  
a c t i v i t y o f t h e p r o c e s s h i l t n o c e l l b e y o n d  
t h e l i m i t a r c m a y h a v e r i o u s e q u e n c e s I n

lumbar vertebra upon the sacrum and displacement of the fourth lumbar upon the fifth. Textbooks state that operative measures are of doubtful value.

The author gives a brief review of the anatomy of the lumbosacral joint. In the cases studied by him there were certain anatomical variations such as an incomplete neural arch, bilateral laminar defects, asymmetrical articular facets and increased obliquity of the articular facets which seem to have been factors in the formation of mechanically imperfect articulations.

With two exceptions the condition in the cases studied is due to severe trauma. One of the exceptions may be explained by Lane's theory of prolonged physiological strain and the other by gradual development.

All of the patients were totally disabled by weakness or stiffness of the back and pain, but a positive diagnosis is cannot be based on the clinical symptoms alone. The condition cannot be demonstrated conclusively without the assistance of the roentgen ray.

A joint which has been dislocated partially or completely must be reduced or fixed before any degree of function can be expected. Attempts to replace the vertebra by pelvic traction with counter traction on the head are usually unsuccessful. The next most logical procedure then seems to be fixation in the position of displacement.

Lumbo-sacral fusion by the Hibb's method offers few technical difficulties and in due time gives complete fixation. In the repair of defects in the neural arch the procedure may be modified by the use of the synovial processes of the third and fourth lumbar vertebra as grafts. Fusion of the fifth lumbar vertebra to the sacrum is sufficient unless there is a displacement of the fourth vertebra in which case it seems safer to fuse the fourth lumbar vertebra to the fifth and the first sacral segment. The operation should be followed by three or four months of recumbency on a Bradford frame or a hospital bed with the application of a Taylor back brace.

The author reports on nine indisputable cases of positional lumbago. Eight of the patients were adults. Six of the adults were males. Six of the adults were treated by operative fusion with successful results. In one case reduction was effected by manipulation. Two cases were untreated.

NORMAN C. BULLOCK, M.D.

Ober, F. R. An Operation for the Relief of Paralysis of the Gluteus Maximus Muscle. *J. Am. Med. Ass.* 1911, 9: 1155.

The operation described in this article is indicated in paralysis of the gluteus maximus muscle and paralysis of the hip. It has been performed by the author in fifteen cases with good result.

The usual long incision parallel with the vertebrae the lateral half of the erector spinae aponeurosis is separated from the inner half and from the ilium

and sacrum. A long strip of fascia lata is then dissected free through a lateral thigh incision the upper end being left attached to the tensor fasciae latae. This strip is threaded through a hole drilled through the femur at the level of the attachment of the gluteus maximus tendon. The long end of the fascia is then passed up over the gluteal fascia and sewed to the erector spinae aponeurosis. If power in the tensor fasciae latae is absent the flap need not be passed through a hole drilled in the femur. CHRISTOPHER C. GUY, M.D.

Brackett, E. G. The Choice of Procedure in Reconstruction Operations of the Hip. *Am. J. Surg.* 1927, 11: 316.

Brackett discusses reconstruction operations on the hip in old tuberculosis and osteoarthritis of the hip and ununited fractures of the neck of the femur.

Cases of old tuberculosis present two quite different problems, one with reference to the mobilizing of the already stiff joint and the other with reference to the stabilizing of an imperfectly ankylosed joint. The first problem arises in only the few cases in which the primary disease subsided early before extensive destruction occurred, leaving a true or a practical ankylosis with firm bone both in the joint line and the surrounding areas and no areas of encapsulated disease. In such cases mobilization may be considered but in view of the always possible danger of opening areas that can rekindle the old disease and in view of the greater security and permanency of a solid union the procedure does not often seem to be the wise choice merely for the added convenience of a definite degree of motion.

The second problem with regard to operative treatment is presented by cases with a damaged joint well along in the quiescent period and presenting irregular joint surfaces with a slight amount of motion controlled by fibrous adhesions and surrounded by areas which were the site of disease in the acute stage and areas of imperfect re-ossification. The author believes that the only true solution in such cases is bony ankylosis.

In osteoarthritis of the hip operation comes under consideration when the pain, sensitiveness and restriction produce definite disability. However, such a joint even when it is the site of considerable pathological change undergoes periods of acute sensitiveness and is painful on use is not of itself a sufficient justification for operation. Many a joint so affected returns to a condition of usefulness without pain and gives little handicap for many years. Such a joint is decidedly preferable to one damaged by both disease and operation.

The slender, rarefied medullary bone does not offer promising material for the formation of a new head, whether with temporary protective covering or not, and is a definite contra-indication against the use of this portion of the neck for a part of the new joint as is done in the usual arthroplasty.

If mobilization is determined upon because of the degree of disability occasioned by pain on use the

Arce F and A ce M The Relationship Between Infantile Osteochondritis Deformans of the Supra Epiphyseal of the Femur and Subluxation or Congenital Dislocation of the Hip (Lac on e tre la out oco lrit tel) m nt nla (L de l epl i upen r d l femur y la ut) zac n lu aci co ge ti l ca lera) l h d md g y esp i l 027 511 447

The conclusions in this article are based upon five cases of infantile osteochondritis deformans of the hip. The author believes that this condition is always associated with congenital luxation or subluxation of the hip. In some cases the subluxation may be anterior. The lesion of the epiphyseal line is as important as the congenital condition. The diagnosis is easily made from the roentgenograms. Both hips should be included in the film. The condition is found more frequently on the right side than on the left but may be bilateral.

WILLIAM R. MEYER, M.D.

Lozet F The End Results of Immobilization in Tibio-tarsal Tube Cystitis in the Child (L i m l i ac n dan l t be cul e t l taru no d len fa t r l lats el g es) R e d orth p 1927 21 99

This report is based on ninety-one cases of tibio-tarsal tubercle in children under 16 years of age who were treated in the period from 1893 to 1922. The end results demonstrate that in early cases immobilization will result in a cure even when there are serious lesions. They show also that immobilization is not in itself as unfavorable a complication as is generally believed.

The age of the subject is of considerable importance. Up to the age of 5 years immobilization is successful in 75 per cent of the cases and gives good function. After the age of 5 years it fails more frequently and after the age of 10 years the incidence of cure falls to 43 per cent.

The cure obtained by immobilization is lasting. In the cases reviewed a late true recurrence developed in only 3.5 per cent.

In conclusion the author emphasizes that patients cured of tibio-tarsal arthritis by immobilization very often have excellent function in spite of deformity of the joint and that without doubt their condition is better than if they had been subjected to a truss.

## SURGERY OF THE BONES JOINTS MUSCLES TENDONS ETC

Lange F Tendon Transplantation (I) e S h erpla g) Fo tch d Th p 926 585

Following Nikolai's muscle transplantation to replace the lost function of another muscle, Lange made the first tendon transplantation for the same purpose in 1896. Through failures it became apparent that after the usual plaster-of-Paris treatment careful after treatment with bandages must be carried out over a long period of time if

permanent success is to be obtained. When there was failure in spite of such treatment the cause lay in stretching of the paralyzed segment of the tendon to which the tendon of the healthy muscle was sutured.

The peroneal method of tendon transplantation was a further advance but was not applicable to every case as the muscle supplying the power was often too short to be sutured directly to the peroneum. Reliable lengthening of the shortened tendon was obtained by the development of the use of silk tendons, a technique originated by Luck in 1892 and later greatly improved by Lange. The silk tendon does not disintegrate but heals in and becomes surrounded by tissue resembling tendon tissue—a wonderful example of what the human body can do under the stimulus of function. Failure of this technique was usually due to the formation of adhesions between the transplanted tendon and an immovable tissue such as bone or fascia which made impossible the action of muscle pull on the peripheral segment of the part.

The problem then was to prevent the formation of these adhesions. As most of the patients were thin it was rarely possible to embed the transplant in fatty tissue. Biesalski's recommendation to draw the transplanted tendon through the tendon sheath or through a turned back flap of fascia had only a limited field of application. Lange attempted to work out a method that would be applicable to all cases. His research demonstrates that a paper band serves best to prevent adhesions. Paper heals in around it, there forms a connective tissue which fills with paper mash fluid and a large quantity of cells form a sort of bursa.

Tenaculum experiments on an animal showed that parchment paper is equally adapted to the prevention of adhesions and has the advantage of being firmer and more durable than ordinary paper. Histologically its behavior differs from that of the paper band in that it does not become dissolved but remains unchanged in the body and gives rise to the formation of a capsule of very thin soft connective tissue. This connective tissue capsule remains still movable in relation to the parchment paper thereby preventing the formation of disturbing adhesions.

As parchment paper has been practically the best material for interposition in intra-articular plaster casts and operative joint mobilization, Lange has entirely abandoned the use of a top layer of material such as flaps of fat or fascia. Since making the change he has had successful results in 90 per cent of his cases.

The article is well illustrated.

LISTEN \ C D R (?)

Will J C Surgical Treatment of Traumatic Spinal Distress J B e u Jo 15 5 97 346

The term spondylolisthesis means displacement of one vertebra upon another but has been limited dogmatically to anterior dislocations of the fifth



The author reports this case because of its historic interest and as one of Lister's efforts to prove the reliability of his antiseptic system of surgery

FREDERICK A JOSTES M D

Rugh J T The Plantar Fascia A Study of Its Anatomy and of Its Pathology in Talipes Cavus A New Operation for Its Correction  
Im J S f 97 307

The plantar fascia removed at operation in fifteen cases of talipes cavus was studied in six laboratories according to the reports in every case the tissue showed chronic inflammatory changes of the infiltrative type No explanation for the fibrositis is given but trauma and infection are suggested as possible causes

The author's operation for the correction of early claw foot consists in the removal of the entire plantar fascia and its replacement by a triangular flap of fat taken from the thigh Rugh has never seen sagging of the arch of the foot due to the removal of the plantar fascia

FREDERICK A JOSTES M D

Mau G and Lauber H J The Operation of Treatment of Hallux Valgus (Deformity of the Big Toe)  
lu des Hall [ou] D t k Zisch f Ch  
96 36

The authors first report upon twelve cases in which the Schede operation was done In three cases the condition was bilateral The exostosis was chiseled away and at the same time an attempt was made to correct the abduction of the great toe by tract on on the tip of the medial capsule which was then sutured with the toe in the extended position to the peroneum of the shaft

Most of the operations were performed three or more years ago and six were done about one and a half years ago Eight of the patients were re-examined in the clinic With regard to the others only written information could be obtained

Examination showed that in all except one case the abduction of the great toe had not been corrected In four the angle of abduction was greater than 30 degrees in six it was between 30 and 40 degree and in one it was 45 degrees In a number of the cases the sesamoid was firmly adherent to the projecting head In one case motion had been entirely lost in the proximal joint In five cases the joint was almost stiff In two moderate motion had been preserved In three motion was normal In four examination with regard to motion could not be obtained In four cases there was marked and in six moderate metatarsal depression In five no information with regard to this condition was obtained The ability to walk was unsatisfactory in nine cases satisfactory in four and normal in two

From these results it appears that Schede's operation must be regarded as insufficient

Hueter's method with resection of the head of the first metatarsal was used in twenty nine cases

A subsequent clinical examination was made in twenty two Written information as to the end result was obtained in seven In two cases the operation was done thirteen years ago in two eight years ago in two seven years ago in four two years ago and in the others between two and four years ago

In six cases the great toe was abducted more than 20 degrees and in fifteen there was adduction of 20 degrees or less In eight cases information regarding abduction was not obtained The proximal joint was quite stiff in ten cases and almost stiff in three In seven cases there was moderate motion and in five normal motion In four cases information regarding motion was not obtained High grade metatarsal depression was present in eleven cases and moderate in ten cases In eight cases there was no report with regard to the presence of this condition Walking was normal in ten cases satisfactory in seven and unsatisfactory in twelve

The chief objections to Hueter's operation are the loss of the anterior medial point of support of the foot stiffening of the proximal joint which was complete or nearly complete in about half of the cases reviewed and a tendency toward high grade arthritic changes in the proximal joint in cases in which a fair degree of motion was retained This operation is unsatisfactory because it is associated with the danger of making the flat foot worse and may be followed by ankylosis or high grade limitation of motion from arthritic proliferations It is indicated however in very severe case of second ary arthritis deformans of the proximal joint

Iudloff's operation was performed thirty times in twenty cases Ten cases were operated upon six years ago seven five years ago eight four years ago eight three years ago one two years ago and four one year ago In five cases information with regard to the end results could be obtained only in writing

On re-examination the angle of abduction of the great toe was more than 20 degrees in eight cases and 20 degree or less in seventeen cases In five cases information regarding abduction was not obtained Marked metatarsal depression was present in twelve cases and moderate metatarsal depression in thirteen cases In five cases there was no report regarding this condition Ankylosis of the proximal joint was not demonstrable in any case In eight cases the joint was nearly stiff In twelve there was moderate motion and in six motion was normal In four no information was obtained with regard to motion Walking was normal in nine cases satisfactory in even and unsatisfactory in fourteen

The author suggests an oblique osteotomy from the upper surface of the distal portion to the lower surface of the proximal portion When this is done the distal fragment guided by the osteotomy plane which runs obliquely downward must slide toward the plantar surface of the foot He believes it would be best to combine this modification of Iudloff's operation with Hohmann's shifting of the abductor

procedure offering the greatest chance of security as well as permanency is the use of the structures which already possess protective covering and in them which do not tend to develop the overgrowth. The use of the trochanteric weight bearing with retractions and fixation of the muscle attachments is most satisfactory. None of the results to any of the different methods can be expected to be brilliant but the conclusion to be reached is usually to separate and the great relief from pain and the varying degree of increase in activity demonstrate the advantage of operative treatment.

In all ununited fractures of the neck of the femur the question is to be answered whether the head may be used or whether the fracture is to be repaired to be employed in its place to obtain stability and motion. When the roentgenogram gives evidence that the remaining head is incapable to perform part of the function of the part the best result is obtained by putting it to the use. In such cases it appears that the immediate contact of the head with the freshly exposed surface of the trochanter gives the best chance of survival. This procedure also is ure glazing the head at the carrying angle which is the most useful function in carrying the load of the neck and securing firm apposition by the action of pull. The reduction of the two opposing surfaces to use a necessary and necessary measure states the rough removal of all of the loose and resistant fibrous tissues and of the bone surfaces until smooth areas are exposed in both fragments.

In cases with greater stability and in those in which the head of the femur is small an atrophic head of the femur line is thin or practically absent and partly or wholly in cases with extensive osteoarthritis. Hence about the margins of the femur and the acetabulum the best solution of the difficult problem presented is the use of the trochanter with transplantation of the muscle attachments.

S. C. W. AND M. C. M. D.

(C. H. W. F. and L. E. M. S. L. A. B.) The Repair of Injuries to the Psoas for Crural Fracture of the Knee Joint. *Ann. Surg.* 1917, 65, 50.

For the repair of injuries of the posterior cruciate ligament of the knee joint the authors advocate a new operation consisting of the following steps:

1. Though a median incision extending from the middle of the back of the thigh to the upper portion of the calf the tendon of the semitendinosus is exposed, detached from the muscle as high as possible above and stripped downward toward its insertion.

2. By way of the superficial portion of the patella tendon the insertion of the semitendinosus is exposed and the whole tendon drawn through the front of the leg beneath the articular surface.

3. The lower portion of the posterior incision is deepened and the posterior ligament of the knee and upper portion of the tibia are exposed by lengthening the space between the gastrocnemius muscles. With a small drill a hole is made in the head of the tibia

from a slightly external to the middle line on the posterior surface of the head of the tibia toward the internal surface of the tibia close to their articulation of the semitendinosus. The cut end of this tendon is then passed through the head of the tibia until it appears in the femoral foramen.

4. The patella and its tendon are split longitudinally to expose the joint. The sharp pointed bolkin is passed from behind forward through the posterior ligament of the knee at a point just above the hole in the head of the tibia in the line of the posterior cruciate ligament. This is done with the knee flexed over the end of the table. The bolkin is then pulled forward until its point punctures the synovial membrane at the most anterior point of attachment of the cruciate ligament to the internal condyle of the femur. The bolkin and tendon are drawn out through the split patella incision.

5. A small incision is made over the internal condyle and the drill is passed through the femur so that it enters the joint at the point at which the bolkin has punctured the synovial membrane. The tendon is detached from the tibia and is secured by means of a flexible wire threaded through the hole in the femoral condyle. When the tendon is drawn taut the new ligament appears through the small puncture wound in the synovial membrane and becomes useful and strong.

6. The knee is extended fully, the tendon drawn taut and the terminal end of the tendon sutured down to the internal lateral ligament. After closure of the wound a plaster cast is applied from the chest to the thigh.

Motion is begun after immobilization for ten months. (J. F. F. M. D.)

Besten Sir C. T. A Case of Extension of the Knee and Elbow Joint by Lord Lister. *Condition Forty Years After*. *J. M. J.* 1910, 60.

In a case in which Lord Lister cured the left knee and elbow forty years ago examination now reveals complete ankylosis of the knee and about a 20° of shortening of the leg. The extension was apparently performed through a semilunar incision. The leg is in a position of complete extension and gives perfect support. In the extremity below the joint is good free movement. In spite of the complete degree of lateral and a temporary flexion in the joint the point can be actively extended and flexed. The forearm can be pronated and supinated. The latter movements are best performed when the joint is fully flexed. There are several small osteophytic outgrowths in the region of the new joint. The left and right middle finger have been articulated at the metacarpophalangeal joint. The left arm is nearly 3 inches shorter than the right.

The roentgenogram of the knee shows complete ankylosis and the wire suture used. The upper extremities of the bones of the forearm appear to articulate with the anterior surface of the humerus about a 10° lower end the latter therefore projecting beyond the joint.

reduction was used. Nineteen of the patients were girls. There were six double dislocations. In two cases of double dislocation the treatment failed. Six cases including four of double dislocation showed reduction with instability. In twelve cases with a single dislocation a good functional result was obtained.

In the difficult cases a period of heavy traction was necessary. The unstable hip showed long shallow sockets and considerable deformity of the head and necks of the femurs. The patient limped and the leg was shortening of the leg with weak gluteal power and limitation of abduction but no pain. Trauma at the time of reduction and too early weight bearing are probable causes of the deformity.

The cases with good functional results showed deformities somewhat similar to those in the unstable hips but had firm upper supporting rims about the acetabula.

Reduction is easier the earlier the child is brought to treatment. The more gentle the manipulation the less danger of bony defects. Open operation should be resorted to when the closed method fails.

The article is supplemented with eight roentgenograms of hips before and after reduction.

W I BLOUNT M.D.

#### Wilkie D P D The Treatment of Fracture of the Neck of the Femur. Surg Gy Obst 97 159

The chief essentials in the Whitman treatment of fracture of the neck of the femur are abduction of the limb and correction of the eversion. Wilkie believes that immobilization of the hip joint is unnecessary and suggests the substitution of a light cheap apparatus for the double spica cast with its attendant risks especially in the cases of aged persons.

The apparatus recommended consists of two flexible upper sheets which have jointed attachment to either end of a rod of suitable length. The sheets are molded to fit the lower legs and incased in plaster while the limbs are held in the desired position. The rod is clamped into the attach-

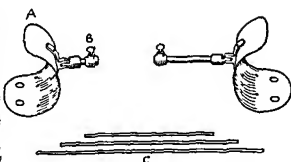


Fig 1 Apparatus consisting of flexible upper sheet A with jointed attachment at B which is tied to central abducting rod C.

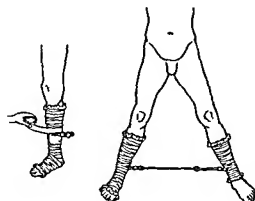


Fig 2 Apparatus incorporated in plaster bandaging and then modified and corrected.

ments on both sheets and lies parallel to the bed. The result is complete abduction with the injured leg inverted but with the hips and pelvis free. A window may be cut in the cast on the sound leg to permit exercise.

To date seven cases have been treated by this method all with satisfactory results.

CHESTER C CUTY M.D.

**Hallucis** This would give a method which while time consuming would be more complete than any employment present. In its original form it is lost a patient has suffered only partially satisfactory result.

H. MANN (F)

# FRACTURES AND DISLOCATIONS

**Kleinert H. E. The Technique of Open Reduction of Fractures** N. Y. C. (B) 1932 XIV 54

In some cases of fracture open reduction is always indicated and must be attempted in spite of the dangers attending bone surgery. Failures of open reduction are inevitable and mechanical reconstruction is a long continued immobilization of the patient. The reduction of the fracture fragment by the use of the Kirschner wire is a technique devised to prevent such complications by assuring firm apposition.

The operation is usually delayed for about eight days after the injury during which time the limb is immobilized in a good position as possible from that operation is begun when the bony elements are ready to be joined. Stereoscopic roentgenogram are made to obtain an accurate knowledge of the position of the fragments. An external bandage is used for the work on the limb but the use of the Kirschner wire is not necessary. The arm is never applied at all until the humerus is in position. The insertion of the Kirschner wire is sufficient to get a good result. The wires are not stripped in the periosteum but the fragments are free to move freely and with great care the periosteum is not disturbed. The wires are being retained in position. Aspiration of the fragments is allowed. Some of the instruments used are a chisel only when it is needed.

Open fractures are in the type which are firm, unstable, circular wire. Two rings of wire are used, the first being drawn tightly and the second wire is drawn and the single knot is tied. The wire is drawn tightly. The insertion of the wire is sufficient to maintain the fragments in position. The wire is drawn from 0.5 to 1 cm. This is used. This is usually heated to a red heat to make it stable.

External fractures are united by a very fine wire. The pegs are inserted into the marrow cavity and the wire is drawn. They are not to be removed. The wire is within a few mm. they become absorbed. The method of accomplishing this in the case of the peg in difficult cases are described.

Other methods such as wiring through the limb with a Kirschner wire and late adjustment are used. The author does not prefer metal plates.

The after treatment is in immobilization in a cast. The patient is kept in the application of heat as soon as the soft parts have healed. The immobilization. The firm application reduces the possibility of immobilization and the chances

of muscle atrophy and joint stiffness and favors an earlier return of complete function.

CHRISTEN C. CRYM

**Hillipie H. B. and C. H. and W. I. Longitudinal Fracture of the Neck of the Radius. A New and Hitherto Undescribed Fracture. Report of 4 Cases.** J. Am. M. A. 1932 I 315

This report deals with five cases of short longitudinal fractures about 1/2 in. in length extending from the epiphyseal line to the neck of the radius. All of the fractures occurred in children and resulted apparently from indirect violence received in falls with the elbow flexed and the forearm in extreme pronation. There was no involvement of the head of the radius or of the radiohumeral joint. The treatment consisted in fixation in the Jones position for one week followed by immobilization in a cast. In every instance recovery was complete in one month.

CHRISTEN C. CRYM

**Kennedy R. H. Fractures of the Transverse Processes of the Lumbar Vertebrae.** J. A. C. 1932 I 519

Among injuries of the back fractures of the transverse processes of the lumbar vertebrae are not rare. The diagnosis cannot be established however until an anomaly which are frequent in this region. The fracture is directly related to the most common cause of this type of fracture is a direct force. The symptoms are pain at the site of the fracture and contusion of the back. In the diagnosis the roentgenogram is of great aid. The fractures are usually multiple. As a rule all of them occur in the same side of the body. In some cases there may be a complete fracture of the body of the vertebra. The fracture is usually injury to the soft tissues such as tearing of the muscle and ligaments with extravasation of blood. The prognosis is usually good if the fracture is not the result of a fracture.

The diagnosis of the presence of a fracture is best with lid from the patient. A swelling is created by the fracture. In some cases a faint bony union of the transverse processes occurs.

The author reports 11 cases in which a bed rest the application of heat and massage. The immobilization in a plaster cast in which the patient is in a recumbent position. The author reports ten cases in which the patient is in a recumbent position. The average period of stay is 15 days. The maximum time of disability was eight months. The outcome is in only one case disability over six months. The majority of patients is healed in six to eight months after the injury.

A. J. CRYM

**Willis D. E. The Results of the Davis Method of Reduction of Congenital Hip Dislocation.** J. B. A. 1932 97

The author reviews the results of congenital dislocation of the hip in children between the ages of 13 months and 5 years in his method of the Davis method of

Arteriosclerosis syphilis trauma and tubercle formation in the vessel walls are etiological factors. Of ten patients operated upon four (40 per cent) were cured. Of those not operated upon all died.

The author discusses also an as yet obscure disease of the intra splenic vascular system with changes in the vessel and extensive arterial and periaarterial inorganic deposits in a circumscribed region which may lead to the formation of a hæmatoma in the spleen. KUCHI (Z)

**Cawadiaz A P.** The Oscillometric Examination of Arterial Permeability. *Bull. M. J.* 1917: 419

Cawadiaz has found oscillometric examination with Pachon's oscilometer to be of considerable aid in determining arterial permeability. He says that this method is more satisfactory than either digital examination or tests of the Moschcowitz or Matas type as it gives more definite knowledge. He introduced it first in 1912 and since then it has been employed by a number of other observers.

Clinically the examination of arterial permeability helps in determining whether obliteration or a condition of spasm is present. In addition it allows observation of the course of the disease and the effect of treatment. Exact localization of the obliteration may be determined by this method since the obturation curve is found precisely at and under the region of obturation. In cases of arteriovenous aneurism it will reveal the character of the blood supply.

The collateral circulation which exists in an extremity may be determined by taking the oscillometric readings before and after compression of the artery. Obliteration of the radial artery by an aortic aneurism or a tumor of the mediastinum may be demonstrated with the oscilometer. The involved artery will show the oscillometric curve of a total obstruction. R. W. McCLARY, M.D.

**Blin W.** Phlebitis and Thrombophlebitis of the Lower Extremity and of the Superficial Vein of the Lower Abdomen. *Lancet* 1917: 70

The author classifies phlebitis with or without thrombus formation as: (1) recurrent phlebitis of the deep veins possibly of a gouty nature; (2) phlebitis phlegmonosa; (3) phlebitis associated with a septic wound; (4) phlebitis following an infectious disease; and (5) intramuscular phlebitis. Groups 1, 2, and 3 are not curable.

A predisposing cause such as damage to the lining of the vein, chlorosis, changes in the quality of the blood, inflammation of the venous walls and colostrum crystaluria, and an increased amount of calcium in the blood must be considered.

The signs associated with the superficial type of phlebitis consist of a small area of cellulitis with blue skin thickening. Pain is present at the onset but later only on exertion or movement. In thrombophlebitis one or more clots may be felt along the course of the vein.

The author reports four cases which are typical of each of the types described.

In the treatment rest of the extremity is important. If a deep vein is involved the patient must remain in bed with the foot of the bed elevated. In palpation of the vein care must be taken not to loosen a clot and set it free in the circulation. Hot fomentations may be employed and if there is much pain the part may be painted with 1 per cent opium tincture administered internally may give relief. An opiate is seldom necessary. If the disease is confined to a superficial vein convalescence may be complete after from four to six weeks but if a larger vein is involved recovery may require several months. WILLIAM J. PICKETT, M.D.

**Clarke B. E.** Fat Embolism. *J. M. Soc.* 1917: 9

Clarke reports two fatal cases of embolism following orthopedic manipulation in chronic arthritis. In the first case both knees and ankle were subjected to the treatment and in the second only the knees were manipulated. The death occurred after five and thirteen hours respectively. Sections from various organs all showed fat. This was most abundant in the lungs, the glomeruli of the kidneys, the heart and the brain.

The author believes that chronic arthritis especially the hypertrophic or rheumatoid form offers optimum conditions for the development of fat embolism. Before treatment is instituted persons with this condition are often ill for many years during which time the bone and surrounding tissues undergo progressive changes: atrophy of disuse and thinning of the bone cortex. The trabeculae of the remaining cancellous portion are therefore extremely delicate and quite brittle. Accompanying the bony changes there is a marked increase in fat. Accordingly, closed orthopedic manipulations in such cases are extremely hazardous. JACOB M. MORAN, M.D.

**Lehman E. P. and Moore R. M.** Fat Embolism Including Experimental Production without Trauma. *A. M. S.* 1917: 62

There is no question as to the occurrence of traumatic fat embolism but there is a question that trauma is not the only cause of fat embolism. The conditions with which fat embolism has been associated may be grouped under four heads: (1) metabolic disturbances (diabetes, cardiovascular renal syndrome); (2) poisonings (3) toxemias from acute infections; and (4) toxemia from tissue destruction (burns). In fatal traumatic fat embolism the amount of fat found in the capillaries is sometime disproportionately large as compared with the amount of depot fat disturbed by the injury. The obvious source of this large amount of fat is the ultra microscopic emulsion of fat in the normal blood plasma. In a series of experiments it was found that the stability of an emulsion varies with the fineness of the emulsified oil. Artificial soap-held emulsions of oil in water are destroyed by (1) fat solvents (2) soap

## SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

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The author reviews the anatomical and mechanical factors influencing the function of the lower extremities and discusses in particular the factors responsible for the flow of the venous blood toward the heart from the experiments of Leithers Braun and Liebenburg concerning the influence that in various cases the back wall of the blood vessels exerts on the periphery of the vessel. It is stated that the pressure is exerted on the vessel by the action of the muscles. It is therefore possible to infer certain information as to the influence of the peripheral venous system on the circulation.

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the emboli in Noble's theory that there may be a time in the central stump of a ligated saffron vein & string coagulation thrombus which will render the ligation dangerous is refuted by the investigations of Baumgarten which demonstrated that in blood vessels ligated aseptically either singly or fully the blood remains fluid and does not coagulate. Artificial thrombosis in varicose veins of the legs is therefore not a harmless procedure and is justifiable only when preceded by high ligation of the saffron vein.

In reply to Hirsch Noll reported the autopsy findings in the cases to which Hirsch referred viz thrombosis of the saphenous vein embolism of the pulmonary artery and renal arteries and a fatal fat embolism. Noll believes that in order to determine whether the thrombi originated in the saphenous vein or the operative area of the anastomosis a histological examination of the veins of the hemorrhoid pileus and the thrombi of the saphenous vein was necessary. He considers preliminary ligation of the veins not harmless because it is not always possible for the operation to be performed under absolutely aseptic conditions.

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The author reports a case of very extensive aneurysm of the spleen cured by operation and reviews fifteen clinically verified cases of aneurysm of the splenic artery and its branches which have been reported in the literature. In all there was a history of pain in the spleen or upper abdominal region (usually sensation of pressure particularly after the ingestion of food) and sometimes a sudden attack of severe pain and turbidness of the circulation at all of the symptoms of hematemesis and hysteresis. In nearly all of the cases it was a mild to moderate illness and resistant to treatment of the spleen or upper abdominal region which a more or less sensitive pressure in the region of the tumor and aneurysm were rare.

In most of the a.e. the aneurism occurred in the trunk of the splenic artery. In the hilum of the spleen, an aneurism of the splenic artery was usually seen. In the splanchnic artery, the aneurism was usually seen in the plexus where a branch of the communicating artery with an intrasplenic branch of the splenic artery had formed. The aneurisms at death in size were neurism as large as a bad had been described and aneurism dilated. In the aneurism of two or three times its normal size is not unusual.

as a simple procedure available to all practitioners. When it is not adequate in itself it may often serve to reduce the size of the tumor and thereby render it removable surgically through a small incision.

The solutions employed consist of 1 gm. each of quinine hydrochloride and antipyrine dissolved in 4 c. cm. of water. A total of from 0.50 to 2.00 gm. of quinine is injected depending on the body weight.

The injections are made directly into the tumor and about the periphery a maximum of 1 c. cm. being introduced at each point. To prevent sloughing considerable space should be left between the points of injection. An interval of about eight days must be allowed between each treatment for the subsidence of the inflammatory reaction. The slight pain which follows the injections is readily relieved by hot wet dressings. Fever often follows the first treatments.

The quinine causes a perivascular sclerosis which rapidly reduces the volume of the tumor. Small hard nodules are produced in the area but these tend to disappear spontaneously. If they do not they may be removed surgically.

Seven cases of moderately large cavernous hæmangiomas of the face were treated by this method with excellent results. The case histories are supplemented by photographs of the patients before and after operation.

ALBERT F. DE GROAT M.D.

## BLOOD TRANSFUSION

Schneider J. P. and Carey J. B. The Nature of the Glossitis in Pernicious Anæmia. *M. J. A.* 1927 24.

In the glossitis which accompanies pernicious anæmia the authors have demonstrated the presence of streptococcus viridans. The technique consisted in sterilizing the surface of the area of the tongue by numerous applications of 95 per cent alcohol and removing under local anesthesia a section for culture. It was believed that this technique gave reliable surface sterilization.

In nine cases of pernicious anæmia examined the culture was positive for the streptococcus viridans whereas in the control cases of glossitis associated with carcinoma of the stomach, epilepsy, Moeller's glossitis, ulcerative colitis and arteriosclerosis the culture was sterile or showed the presence of some other micro-organism. Sections were made for the monilia and for spirilla but in all cases these were negative.

The presence of glossitis does not seem to depend upon the degree of anæmia since in some cases the glossitis preceded all other symptoms and seemed to improve as the anæmia increased and vice versa.

The results of this investigation seem to verify the findings of Hunter working with autopsy specimens of glossitis from cases of pernicious anæmia.

WILLIAM J. PICKETT M.D.

precipitants (3) acid and alkalies and (4) the products of protein decomposition. The physical and chemical nature of fat in the blood serum seems to be determined only by the fat solvents.

A series of experiments in the lemon test that fat emboli can be produced by the intravenous injection of ether and also to less extent by the inhalation. The mechanism is that of the test tube. The ether in the blood stream takes into solution the circulating emulsified fats and as the ether vapor passes into the alveoli the vapor tension in the blood is lowered and at which the fat comes out of solution as free fat. Fat emboli will not let the ordinary microscope thus appear. More fat is available in fat cells but even in stars. It is given up fat can be taken up by the circulating ether vapor to create emboli.

In the test tube experiments it seems highly probable that the action of products of protein decomposition circulating in the blood stream is an additional factor.

The practical significance of these findings in clinical surgery when producing anasthesia follows a heavy meal of fat and when intravenous anesthesia is given in cases in which the plasma content of fat is high is obvious. The reduction of the presence of tissue disintegration products in conjunction with a high fat diet is suggestive.

In attempting to determine the lethal dose of intravenously injected ether the authors are following in the footsteps of numerous investigators. They state however that if the difference in effect between a narrow fat content and a high fat content is a human can tolerate a case by a dog it will be fatal to the dog. The veins of the fat stream with marrow fat angle semur with uterine angiolept.

(3) J. A. C. Lister (MD)

Holman F. and Edwards M. F.: The Surgery of Large Vessels. J. Am. Med. Ass. 1917, 13, 909.

Holman and Edwards discuss the principle of occluding the companion vein whenever injury or disease requires ligation of the main artery to an extremity. The decrease in the incidence of gangrene following the application of this principle in clinical cases has been corroborated experimentally by several investigators.

The authors present experimental evidence in support of a further modification of the operation which requires that under certain circumstances the ligation of the vein be performed at a considerable distance proximal to the site of ligation of the artery. They summarize their work as follows:

1. The blood pressure in an extremity may be increased by a ligated artery by occlusion of the main vein. The extent of the increase being dependent on the site of ligation of the vein. Experimentally ligation of the femoral vein increased the blood pressure in the distal end of the divided femoral artery 6 mm. hg. ligation of the common iliac vein raised it 3 mm. And ligation of the vena cava raised it 33 mm.

2. The volume flow of blood to an extremity by a ligated artery is increased by occlusion of the main vein. The extent of this increased flow depends also on the site of ligation of the vein. Experimentally the relative volume flow from the distal end of a divided femoral artery was 0.9 cc. of blood per minute in the femoral vein increased to 1.2 cc. per minute when the flow to the common iliac vein was increased to 1.0 cc. per minute.

3. Gangrene of the extremity occurred in 15 per cent of the animals in which the venous circulation was simultaneously ligated with the artery. Its occurrence in 15 per cent of the animals in which the common iliac artery and its branches were ligated at the same level.

The authors conclude that the experiments corroborate the teachings of Virchow and others that in order to decrease the incidence of gangrene in cases of occlusion of the main artery to an extremity must be accompanied by ligation of the main vein.

It appears however that ligation of the main vein should be done not at the level of the ligation of the artery but proximal to the embolus. It states that compression of the arterial branches furnishes the main collateral circulation. Ligation of the vein at the point proximal to an increased peripheral resistance in the artery is beneficially supplied by these arterial branches and directs the blood through these branches into the extremity.

4. Multiple anastomosis of the main artery is performed as a sign of impending gangrene in the extremity. Signs of impending gangrene in the distal circulation proximal to the level of ligation of the artery are: 1. Reddening of the skin. 2. Placental artery and vein have been ligated and gangrene impeded. 3. Ligation of the common femoral or common iliac in the rat.

Ligation of the main artery and vein with improvement of the result in the rat. A. Göttsche, C. L. and J. L. Lister. J. Am. Med. Ass. 1917, 13, 910. Oppel gave title to an experimental group. Whenever there is partial ligation of the artery with an accompanying reduction in the flow with which blood may flow into the extremity a corresponding ligation of the vein bed then according to the direction in the extremity with which the ligation of the extremity is made at the site of the ligation of the artery. Thus in certain instances the procedure is averted.

J. A. C. Lister (MD)

Des Barres Le R.: The Treatment of Angioma by Injections of Ointment Salt into the Tumor. (Traitements des angiomes par les injections de sel marin.) J. Chir. et Mal. 1917, 13, 911.

The method of treatment of angioma here described is intended to replace the angioma with a high gives excellent results in certain cases.



The decision was then made to give pre-operative prophylactic treatment of the same character. Half an hour before the induction of anaesthesia 100 c cm of orange juice was given by mouth and 5 units of insulin administered hypodermically. This treatment was supplemented by the administration of 100 c cm of glucose three hours after operation.

In two chest cases in which a previous operation had been followed by severe vomiting there was no vomiting and only slight postoperative nausea following a second operation when the described prophylactic treatment was given. When one of the patients underwent a third operation without the prophylactic treatment she vomited for three days. This vomiting was then controlled by 100 c cm of 5 per cent glucose and 10 units of insulin.

The method described has relieved also the vomiting of peritonitis, the vomiting of pregnancy and the acetone vomiting of children.

MARCUS H. HOBART, M.D.

### ANÆSTHESIA

Ockerblad N. F. and Dillon T. G. Ephedrine in Spinal Anæsthesia. J. Am. M. A. 97: 1135

Spinal anaesthesia is most satisfactory for urological cases but is often accompanied or followed by a

marked depression which cannot be accounted for by the operation. This effect is due to a marked fall in the blood pressure. To combat it the authors have used ephedrine. Chen and Schmidt have shown that the action of this drug is similar to that of epinephrine and is due to stimulation of the sympathetic nervous system.

Ockerblad and Dillon have used it in twenty four cases with uniformly good results. The blood pressure was first determined and a spinal puncture with the removal of 10 c cm of spinal fluid then done. Five cubic centimeters of the spinal fluid was discarded and the remaining 5 c cm with from 125 to 200 mgm of sterile procaine hydrochloride crystals then replaced in the subdural space. When the blood pressure had fallen 20 per cent the ephedrine was given subcutaneously and the blood pressure again determined at ten minute intervals. The pressure must not be allowed to fall too low before the injection as the rise from levels below a systolic pressure of 80 is retarded. The authors used 0.1 gm of the drug subcutaneously before the pressure dropped below 100 mgm Hg. Besides the increase in the blood pressure they noted an increase in the pulse rate after the injection. In the first few cases the drug was given by mouth. In these also it caused a marked increase in the blood pressure but its action was delayed.

CHESTER L. CREAM, M.D.

# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

Da Idson E C The Treatment of Acid and Alkali Burns *Ann Surg* 1927 184 48

The lesions produced in tissues by the action of alkalis and acids resemble those produced by heat. The latter however are self limited in depth because tissues conduct heat poorly and the heat agent causing the burn is soon chilled. In the acid or alkali burn the destruction may be progressive. The usual treatment of the lesion is the prompt removal of the irritating agent followed by neutralization with acetic acid in alkali burns and with sodium bicarbonate in acid burns. Smith and Holland however have advocated the use of water as a first aid treatment with neutralization as a secondary measure. The author has attempted to determine the relative efficacy of neutralization and simple dilution in experimentally produced acid and alkali burns.

Rats were anesthetized with ether and a hind leg was immersed in the test solution for a given period. Three groups of animals were used in each experiment. In the first group the excess of acid or alkali was carefully wiped away with cotton. In the second group the irritant was neutralized with 5 per cent sodium bicarbonate or 1 per cent acetic acid solution. In the third group the burns were treated by vigorous washing with water. Different dilutions of various acids and alkalis were tried.

In every instance the rats which were washed thoroughly survived longer than those which were treated by neutralization and at any given period after exposure to the caustic their lesions revealed less evidence of irritation than lesions treated by neutralization. It is thought that the heat of neutralization may be a factor in increasing the trauma.

The latent periods of sensory stimulation of various caustics upon human skin were also determined.

The author concludes that when treatment by neutralization is employed it should be used only after the maximal amount of the caustic has been removed by thorough washing.

LEO M ZIMMERMAN M D

Gordon B and Cantalowa A The Use of Parathyroid Extract in Hemorrhage *J Am Med Ass* 1927 127 13

This study was undertaken to obtain further data on the prevention and treatment of hemorrhage arising from various sources. The 10 me dosage of parathyroid extract (from 10 to 15 units every thirty to thirty six hours) was used except in a few instances in which from 15 to 20 units were

administered every twenty to twenty four hours. The plan of treatment was to continue the injections until the hemorrhage ceased and then to administer one dose after thirty hours. So far as possible other treatment was discontinued. The cases studied included hemorrhage from the respiratory tract (most frequently the lungs), the gastrointestinal and genito urinary tracts and operative incisions in various parts of the body. The extract was administered also to patients with jaundice and other conditions in which the clotting time of the blood was prolonged.

In all the parathyroid extract was administered to 347 patients with hemorrhage from various causes. Cessation of the hemorrhage occurred in 304 cases following one or more transient increases in the calcium content of the circulating blood. The most favorable results followed the administration of from 10 to 15 units every thirty six hours for from one to three doses. As a preoperative measure in cases of jaundice the administration of the extract reduced the coagulation time to within normal limits and apparently prevented hemorrhage. Unfavorable results were produced by overdosage and prolonged administration. They occurred also in cases of blood dyscrasias (puerperal hemorrhage and hemorrhagic disease of the newborn), irrespective of the size and number of doses apparently because of certain local changes in the tissues.

As compared with common experiences with the oral and intravenous administration of calcium the results are more dependable. Gastric irritation and other untoward effects are avoided. The hormone was found to be of special value in the cases of patients recovering from surgical operations who were unable to tolerate oral therapy.

In conclusion the authors state that the use of parathyroid extract is of value in the control of hemorrhage because it effectively mobilizes calcium salt which is normally stored in the body and is necessary for the clotting of blood.

EMIL C R BISHOP M D

Dolan H S Postoperative Vomiting Treated by Glucose and Insulin *Clinical Medicine* 1927 97 437

As postoperative vomiting was noted to be relatively rare in the cases of diabetic patients given a moderate carbohydrate diet controlled by insulin, the attempt was made to control postoperative vomiting in other cases by the administration of glucose and insulin. Accordingly three old women with severe vomiting for three days following operation were given 500 cc of 10 to 20 per cent glucose intravenously and from 10 to 15 units of insulin hypodermically. The vomiting ceased the same day.

tion and fever. The regional gland swell up within forty-eight hours after the onset and about twenty-four hours later the primary site of infection becomes tender with the formation of an inflamed papule which breaks down leaving a necrotic core which is later extruded and leaves an ulcer. In a certain number of cases the skin over the lymph glands breaks down but in about 50 per cent the glands remain hard and tender for from two to three weeks. Subcutaneous nodules are frequently found along the course of the lymphatics. The incubation stage which lasts from two to three weeks is associated with weakness, loss of weight, chill and prostration. The fever is rather typical showing first a rise lasting for two or three days, then a remission lasting for two or three days, and then a secondary rise which goes up to the original height and gradually declines to normal in two or three weeks. There is a moderate leucocytosis.

The general symptoms and course in the four types are the same. In the oculoglandular type the preauricular parotid submaxillary anterior cervical and axillary glands are enlarged. Of twenty-two oculoglandular cases the involvement was bilateral in three cases and in all of these three it was fatal.

The mortality is low. In 323 cases there were only seven deaths. Convalescence however is slow, the patient usually being unable to return to work for three months and some of them not for six months or a year.

The diagnosis is based on a history of dressing or dissecting wild rabbits or of a tick or fly bite, a primary lesion either a papule followed by an ulcer or a conjunctivitis, enlargement of the glands regional to the primary lesion and a fever of two to three weeks duration. In the laboratory the diagnosis will be confirmed by agglutination of the bacterium tularensis with serum from the patient during the second week and increase in the titer during the third week, and by isolation of the organism from inoculated guinea pigs. The serum will agglutinate bacillus abortus and bacillus melitensis; it usually does not do so in as high a titer as it agglutinates bacterium tularensis.

One attack confers immunity to the agglutinins persist in the blood for years.

The treatment is purely symptomatic. Bed rest is most important. Incision of the glands is not advisable. No vaccine or serum has as yet been developed.

MICHAEL L. MASO, M.D.

#### HOSPITALS MEDICAL EDUCATION AND HISTORY

William J. W. I. in Architecturally Isolated  
Building Essential for Lying In Hospital?  
J. H. P. 90 x 58

The author does not agree with DeLee that the maternity should be housed in a separate building. He cites his experience at Johns Hopkins Hospital

Baltimore where the maternity service at first occupied the same floor as the isolation ward.

Williams does not consider puerperal infection to be airborne but insists upon a rigid aseptic technique especially the avoidance of routine vaginal examination. A proper personnel on the service is of more importance than the architectural arrangement of the building.

The author has had training in the pathological laboratory and is still a regular attendant at post mortem examinations which are made in most of the cases of death on this service.

The proper planning of maternity hospital should interest the obstetrician as well as the architect. Large well ventilated rooms, porches, solarium, etc., are important. The building should be as sound as possible, as quiet is important to the welfare of the patient.

In conclusion Williams says that if DeLee's plan were rigidly followed as the only safe way in which to conduct a maternity, the cost would be so prohibitive that the service could be carried on only in large wealthy institutions.

WILLIAM J. PICKETT, M.D.

Sherrington, Sir C. S. Lister as a Physiologist  
B. J. M. J. 92, 1, 653

Bullock, W. Lister as a Pathologist and Bacteriologist  
B. J. M. J. 9, 654

Moynihan, Sir B. Lister as a Surgeon  
J. 19, 7, 656

Thomson, Sir S. C. Lister, A House Surgeon's  
Memories  
B. J. M. J. 19, 7, 69

SHERINGTON. Lister's earliest paper in 1853 dealt with the contractile tissue of the iris. In his second paper published a few months later he discussed the arrectores pilorum. His third paper was also physiological dealing with smooth muscle. About this time he wrote his father that he had become greatly interested in surgery and had begun investigating the fundamental process and reaction of inflammation. These investigations led to his article on the pigment cells of the frog's skin and the nervous control of arteries.

BULLOCK. Lister's theory as to the cause of blood coagulation—that it is due to the influence exerted on the blood by contact even momentarily of ordinary matter of some kind—is about as good an explanation as we have today.

Lister became one of the foremost bacteriological technicians of his time. He grew the bacterium lactis in pure culture in sterile milk. His work on lactic fermentation is a classic.

He regarded irritants as acting in a twofold manner: the primary effect a dilatation of the vessel brought about by the influence of the nervous system and not limited to the locus of the irritant, and the secondary effect the direct outcome of the irritation itself in consequence of which the blood becomes altered physically and the red disks become more adhesive, accumulate in masses and may bring about a condition of stasis.

## MISCELLANEOUS

### GENERAL BACTERIAL PROTOZOAN AND PARASITIC INFECTIONS

Meleney F J Hemolytic Streptococcus in Surgical Operating Personnel J A M A 1917 12 1 1392

In a previous study of severe hemolytic streptococcal infections of operative wound Meleney and Stevens were able to demonstrate by agglutination tests that a culture taken from one of the infected wounds was identical with a culture taken from the nose of the instrument nurse who assisted at the operation. This suggests to Meleney the study of the incidence of hemolytic streptococci in the noses and throats of the operating room personnel during a twelve month period and the incidence to be greater in late winter and spring with a peak in April and May. The incidence was higher in the surgeons than in the operating room nurses. At one time or another positive cultures were found in nineteen of fifty three surgeons but in only eight of seventy two nurses.

When a leaguely masking of all persons entering the operating room was practiced the incidence of operative wound infections was decreased. While there is little doubt that there are other causes of wound contamination the author wishes to emphasize the effect of eliminating by a leaguely masking one important source of wound infection.

MELANEY F. J. ICHT J. I.

Francis E. Tularemia. J A M A 1917 12 337

Tularemia is a subacute to chronic infectious disease caused by the bacterium tularensis which occurs naturally as a fatal bacteremia in certain wild rodents and is transmitted to man by fly or tick bites or by contamination by the body fluids or tissues of infected animals or insects. It has been reported in thirty four widely distributed states of the United States from the District of Columbia and from Japan. The organism was originally discovered in the California ground squirrel by McCoy in 1911. Francis named the human disease tularemia in 1921.

The constant source of the infection appears to be the wood tick which harbors the organism throughout its life and transmits it to its young. The body fluids and tissues of the insect are loaded with the bacteria. The horse fly transmits the disease mechanically by contamination of his mouth part with the blood of infected rabbits or other rodents. In the wild rabbit the condition is believed to be transmitted by lice and ticks.

There is a certain seasonal incidence of the disease in man due to the seasonal activities of the flies and

ticks and to the open sea for the shooting of rabbits and determined by game regulations. Farmers and their families, market men, housewives, cooks and hunters are most commonly affected because they are more often in contact with sources of infection. Laboratory workers are frequently victims because of their contact with experimental or test animals lying of the disease. Males are much more often affected than females.

The infecting micro-organism is small, polymorphic and gram negative. It grows only under aerobic conditions and not at all on the common laboratory media. It is easily killed by heat and chemical agents. In rabbits guinea pigs and white mice dying from the disease the bacteremia is so great that 0.0000001 ccm of the heart blood will kill a fresh animal. The ectoparasites of the tick and bed bug are rich in micro-organisms.

Pathologically the lesions characterize by subcutaneous approaching character in the primary ulcer the subcutaneous nodules the lymphatic glands the lymphatics between the primary ulcer and the glands in the internal organs the liver spleen lungs and adrenals. The lesion is granulomatous with a central area of caseation surrounded by epithelioid cells fibroblasts and lymphocytes and rarely by giant cells. It is usually diagnosed as tuberculosis by those who are not familiar with the condition.

Four clinical types are described.

1. The ulceroglandular type in which the primary lesion is an ulcer usually on a finger with enlargement of the epitrochlear and axillary glands. In the majority of these cases the infection results from the direct handling of or skinning of rabbits. In a smaller percentage it is caused by fly or tick bites.

2. The oculoglandular type in which the primary lesion is a conjunctivitis with later an ulcerous conjunctivitis and enlargement of the regional glands. In 75 per cent of these cases the infection is derived from rabbits.

3. The glandular type which shows enlargement of the epitrochlear and axillary glands without a primary lesion. In all cases of this type the infection comes from the handling of rabbits or the dressing of rabbits for sale or for cooking. The organism presumably penetrates the unbroken skin.

4. The typhoidal type which shows no primary lesion and no glandular enlargement. This type has usually occurred in laboratory workers who have done necropsies on infected laboratory animals.

After an incubation period varying from one to nine days and a erasing three days the patient becomes suddenly ill with headache vomiting chilliness chills chills pains a eating prostra

Lister's ward were free from what was everywhere accepted as the recognized hospital smell. His dressings when taken off were free from putrid and fetid. Thomson well remembers the surprised and approving sniff with which the visitor—generally a foreigner—confirmed Lister's frequent and pleased remark. You will notice gentlemen that any discharge is only serous and is quite sweet. Yet Londoners did not come to see his epoch-making change and to be convinced. In Edinburgh Lister's class frequently numbered 400 students. In London some ten or twenty might turn up but even there gradually fell off.

Lister's hands as large and neither graceful nor delicate looking. Lister was a steady, firm and

deliberate operator. He never wore a white gown nor a mask nor gloves. He frequently did not remove his coat but simply rolled his sleeves back and turned his coat collar up so that his white starched collar would not be made sodden by the cloud of carbolic spray in which he operated. Sometimes he removed his black frock coat while operating and had an ordinary towel pinned across his chest.

Lister created anew the ancient art of healing. He did more for surgery and mankind than had been done by all the surgeons of all the ages since the days of Hippocrates.

Thomson says he never saw Lister do an abdominal section.

CARL R. STEINKE, M.D.

No one could be in contact with Lister with out being impressed by his noble personality his magnanimity his liberality and his modesty.

Mossman. Lister's life story was very gradual. His earliest interest in surgical inquiry were concerned with inflammation and its nature and the possible methods of controlling it. In this as in many of his earlier investigations Hunter was both his inspiration and his guide. His paper "On the Power of the Lacteal Fluid in the Maintenance of the Mucous Membranes" published in 1837 based on research begun in 1831 was an extension of Hunter's experiments on absorption. His studies on coagulation of the blood began with an investigation on the blood in the veins of heaps of tanners' stables from the slaughterhouse. By means of his experiments he was able to carry out knowledge of coagulation of the blood far beyond the point to which it had been brought by Hunter and his son a century before yet the method he employed were clearly modifications of the case of Hunter.

Lister's first premise was that decomposition in a wound is dependent upon the activity of living microorganisms. His second that such organisms will be destroyed in the wound as they were about to enter the wound and his third that the organisms within the field of operation will be destroyed before they enter the wound.

Lister saw more in his than all the wars of all the ages have thrown away changed the face of surgery and created if not a new art at least a new and safe and limitless opportunity for the practice of the old art.

The first conception in Lister's mind in respect to treatment was that the organisms within the wound and those entering it might be destroyed by some chemical agent the nature of which was to be determined by a series of experiments. It is hardly dispute that Lister clearly realized the distinction between the prophylactic and the therapeutic uses of chemical agents in surgery.

The consequences of Lister's work are numerous and far reaching. The immediate result was of course the complete abolition of many of the dangers of infection in a wound extending to other parts and causing severe and protracted suffering even grave risk to life itself. When the few operations then performed became safe it was obvious that other operations might be attempted. The result was that procedure formerly regarded as very dangerous were performed more frequently as soon as it could be claimed that their risk was definitely less than the risk of inaction.

It is Lister's work that has permitted us so to plan our operations that not the least small but also all the septic parts such as lymphatic glands into which it makes haste to extend can be removed in one mass and that infection is now the least of our anxieties.

We may almost claim that the full effect of Lister's work is now accomplished. We know that for all time operations of every kind may be

performed without the grave risks that formerly prohibited them. The art of surgery is far in advance of all the sciences upon which its future progress depends.

On the roll of honor which bears the names of the saviors of mankind no name is more worthy of remembrance than that of Lister. Lister's living and enduring memorial a great and ever greater multitude of men women children of every nation and creed who through his mercy and by the skill of his hands have been relieved from misery and suffering and sorrow and made for a more triumphant over death itself.

Thomas. Lister a hero to the mankind than all the surgeons from the beginning of history. He was of pure English stock his people coming from Yorkshire. From his father a prosperous wine merchant in London he inherited a taste for scientific pursuit. His father was deeply interested in the science of optics he helped perfect the microscope and was a fellow of the Royal Society.

In 1833 when Lister was 6 years of age he went to Edinburgh to study under Syme. It has been said of Syme that he never wasted a word a drop of ink or a drop of blood. Lister became Syme's assistant and a few years later his son-in-law. From Edinburgh Lister was called in 1861 at the age of 31 years to fill the Chair of Surgery in the University of Glasgow. There he remained until 1869 and it was chiefly during these years that he laid the foundation of antiseptic surgery. In 1869 at the age of 34 years he returned to Edinburgh a Professor of Surgery in the University and there passed the eight years of his life which he afterwards referred to as the happiest as they certainly were the fullest. In 1877 he went to hold the same chair at King's College London. He has stipulated that he should be allowed to bring with him from Edinburgh four assistants already trained in his methods and attended solely by him. Of these four who accompanied Lister to Edinburgh to London one Dr James Altham of Penrhyn a leader of the vivifying three one Dr W. H. Dobie who has long held a high position in Chester. Another Dr J. H. Stewart of Halifax in Nova Scotia one of the most affectionate pupils of the master whom he has drawn in many letters and pen pictures. The fourth is Dr William Watson Chene who was Lister's first house surgeon in Edinburgh and his first in London and succeeded his master as professor in King's College Hospital.

The peace-loving Quaker spirit of Lister was greatly distressed by the opposition he met with in the hospital from the nursing sister of St. John. Lister upset the pious sister by his abolition and by purification of many pairs of hands before touching a patient and many of his patients were carried or wheeled into the theater as subjects for clinical lectures.

Fifty years ago the wards of most of the hospitals in England reeked with the smell of putrefaction just as they had done for centuries but

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C a s t o o l a c t a p p e d i c t s G M T a n e r  
L a e t q c x 97  
T e t i f n e c e o f p e g n v l a l a n d t h e p u r p e r u m  
n c u t a p p d i c t t h e p u t i c r e s u l t s P o r t e s a n d  
S c u v C y n e c e t o b s t l o 7 x 14  
O p e r t v n d a c t o f a c t e a p p n d c t f N i e  
v e r A c h b s l d m e d 1927 x i 83  
D g l a t s d a p p e d e c t o m y C o d a m v L y o n  
c h i 1927 x i 88  
S y t e m a t c p r i m a r y c l o u e f t p p n d e c t o m y  
K u l o z i k M e c h n m e d W b s c h 19 6 l x i 030  
A r e c u t a o u t u m f o l l w i g a p p e n d c t o m y  
T M a y e d a J a p J d r m a t o l & u o l 9 6 x x v 803  
H p t c a b s c s f o l l o w i n g p p n d i c t I v o n P e o e k  
Z t l b l f C t 1927 l v 96  
C c i n m a n c a n c d o f t h e p p e n d i x H V o l l m a r  
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The q u e s t i o n o f t h e t e m p e r a t u r e o f p e t y p h a b s c s  
W S c h m i r 9 6 D i s s r t a t o E l i n g e n  
The n e c e s s a r y o f c o n d a r y a p p e n d i c t o m y n e n t y p h i l c  
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e n c a p u l a t d a b s c s o f a p p e n d i c u l r o u g n w h c h h a d





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The i e a t m t of p r o l p s e W N E V I T H M o a t a s c h  
f C b u r i s h G y n a k 19 27 l x v 334  
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u n C R A I E f y o c h 19 27 x i 9  
A c y t l y m p h i b m a o f t h e t r u i f B R U C H  
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G y n c o l o g i t m p o d w t h p r a f f i A L A N D E R  
Z n t a l l i f G y n k 9 7 l 5  
A t m i c l d h t l c l c l c a t i o n o f t h u t r i  
m t O I R A V O U E M e d K l n 9 6 x  
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I a t n a t h p g n f d m e t a l c c o m  
i d t e d b y t h h o l g e t t r u c t W S L D V  
S g G y n c & O b s t 9 7 x l 646

- C a c e r f t h c e r v i c — t s p a s t p r e s t a d t f t u  
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R o e n t g e t h a p y n t h p h y l i s o f c e c e o f t h e  
t e r i c e r v i c D E Z A K u f m m e d 9 7 x l i 3  
O b s e r v a t i o n n r t c l b y f r s t t i t l e d T h  
9 e s t n f i r r a d t o t h e r a p y f o c r v c a l r e i o m  
K N E U W I T H Z e n t l b l f G y n a k 19 6 l 3351  
Th d e l o p m t f s a c o m a f t h t r u d o n  
f o l l w g A r y i r a d i a t n f V o o r S t a b l t h  
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T w c s e s o f c y l d c a l e p t h l o m a f t h u t  
b o d y t r a l e d a n c u e d t y l m L A P I N T a d G y  
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c a s e o f o p e r a b l a n n o m s o f t h c r v F D A W I T T  
Z t r a l l i f G y n k 19 6 l 327 [238]  
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t h e u t s L F D R I E S S E N Z t a l l i f G y n e k  
19 27 l 74  
C t l t o n t h t e c h q u e f W r t h m o p r a t u a  
f r e c a i m a R A S C H Z e n t r a l l i f G y n e k 9 6 l  
2481  
R e s l i s f o p t e t m t o f c e c v i c a l c a r c i n m a n  
t h C h n t f y c o l c a l c d n n g t h y e a r s 9 6  
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[239]  
M y t e c h n i q o f t t l h y s t r e c t m y w i t h r e t n o f  
t h e a i n S P A S S E R O Z t r a l l i f G y n a k 9  
l i 4

## Adnexal and Peritestic Cnditions

- I t h e r e a t l l p h t e S p h n t e r s t r u c t e s t h e  
u t r u P S C H I E D E R A f F E I S E R Z t r a l l i f G y n k  
92 l 23  
S t r i t y f w o m a t h a l f t b l n s f l t i o n  
t h r e c o g t f t h c a s e t h c o d t t h p  
n o s a d t h e t m t f C r r 9 6 l i S p r g  
I t r a t r i m p l t i n o f t h t b e s w t h p e  
t o f t h m a e l s O H L E R C H K l W h s c h  
9 7 4  
I g n f t r i m p l a t t f t h t b e s t t h  
u t r u f H e r u Z t r a l l i f G y n k 9 6 l  
51  
Th t m t f f l a m m a t r y c o d i s f t h e  
d a e s p a l l y g o h o r a b m n s f t h A y  
W B E R F i s c h d G b d R e t n s t r a h l n  
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M u l t i p l e p m m k r m l n t h o m t m t h  
s o s a d t h t b e s n p l c p n t t r e R  
C O R D E A A r c h f p t h A n t 9 6 c e l u 83  
P r m y c a r c i n m f t h t b e s W B L K Z t l b l  
f G y n a k 9 6 l 53  
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o p e r t O P M A N V E L Z t l b l f G y k  
9 6 l 304  
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p t i c u l l y o f t h y L F r A m J O b s t &  
C y e c 9 6  
O p w t h g m u d t o m C  
H o r k M e d K l 9 7 x 33  
O a t h e r a p y w t h g m i t m e f  
K M ~ K l W b h 9 7 95  
I p r a i n d p e t e s f t h n b r m  
a w t l b l e f o r m F D I C K E C D o o b s d  
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# International Abstract of Surgery

*Supplementary to*  
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# INTERNATIONAL ABSTRACT OF SURGERY

OCTOBER 1927

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### HEAD

Cushing H. Experiences with Orbito Ethmoidal Osteomata Including Intracranial Complications with a Report of Four Cases. *S & Gy c* 20: 921-72

Cushing reports four cases of orbito ethmoidal osteoma with intracranial complications. In the first case that of a man 23 years of age the osteoma was clinically mistaken for a meningioma of the olfactory groove. Transfrontal osteoplasty exploration disclosed an intradural projection of the osteoma. The tumor was removed through the roof of the orbit with unavailing opening of the ethmoid cells. The operation was followed by cerebrospinal rhinorrhea and death from infection and meningitis.

The second case was that of a man 22 years of age who gave a history of convulsions and recurrent orbital infection. A lateral craniotomy had been done previously for drainage of an infected (?) aerocoele. Attempted exposure of the tumor by the author was blocked by an infected frontal sinus. Further surgical intervention was delayed. A ventricula pneumatocele with nasal rhinorrhea then developed and death resulted from meningitis four years after the onset of the symptoms.

In the third case that of a man 41 years of age a huge intracranial pneumatocele of unexplained origin was exposed and emptied at operation. The pneumatocele then recurred. A second operation revealed an ethmoidal osteoma and alongside it a minute canal connecting the ethmoid cells with the adherent leptomeninges whereby the pneumatocele could be inflated. The tumor was removed and the canal closed by the implantation of fascia. The patient recovered.

The fourth case was that of a man 35 years of age. A transfrontal osteoplastic craniotomy revealed an orbito ethmoidal osteoma with an intralacrimal projection and an intracerebral mucocoele. The tumor was removed through the roof of the orbit with opening of ethmoidal cells. Closure

was effected with a fascial stamp. Uncomplicated recovery resulted.

The author states that the first two of these patients died because of a lack of knowledge concerning the relation of the osteoma to the intracranial symptoms. One died from infection due to failure to close off the communication between the meninges and the nasal cavity at the conclusion of the operation and the other as the result of surgical procrastination.

In Cushing's opinion it is best to remove ethmoidal osteomata as soon as they are revealed by the X ray.

The lesion under consideration arises apparently from the ethmoid cells. Therefore it would supposedly lie in the province of and be detected primarily by those who specialize in diseases of the nose and throat. As a matter of fact the secondary symptoms usually send the patient first to the ophthalmologist and in the past the ophthalmologist has courageously and often successfully attacked the lesion from in front with the removal of at least its intra-orbital portion.

It is evident however that certain of these ethmoidal osteomata perhaps the majority of them ultimately lead to intracranial complications of one sort or another. Consequently they may fall into the hands of those whose special training makes them more familiar with the cranial chamber than with the orbit or the recesses of the nasal apparatus. So do our surgical specialties overlap. Since no surgeon can possibly foretell into what difficulties or into what adjacent and unfamiliar regions his chosen specialty may lead him the patient will be safeguarded only when all who engage in surgical specialization have a thorough preliminary grounding in the principles of general surgery.

CARL R. STEINKE, M.D.

Dickinson A. M. Injuries to Stenson's Duct. *J. S. I. J. M.* 19: 7-11, 1917

Stenson's duct or the ductus parotideus is from 3 to 6 cm. long. At its origin in the parotid gland

## EDITOR'S COMMENT

THE critical study of the late results of medical or surgical methods of treatment constitutes one of the most helpful forms of clinical investigation. Several such contributions are abstracted in this month's issue of the *INTERNATIONAL ABSTRACT OF SURGERY*, notably those of Villaret and Bailly on the late outcome of craniocerebral injuries (p. 331) of Braasch and Cathcart on the prognosis in chronic pyelonephritis (p. 345) and of Lengemann on the results of gastro-enterostomy (p. 351).

Villaret and Bailly have been able to study the results of craniocerebral injury in 500 patients injured from ten to twelve years previously. Constant development of subjective symptoms or of epilepsy in every case of unevacuated subdural hematoma, the tendency of the brain to tolerate foreign bodies with little reaction except that due to the injury of the brain coverings in which the foreign bodies were located or through which they had passed, the frequent development of epilepsy after periods varying from one to nine years, and the harmful rather than helpful effect of cranioplastic operations are a few of the points emphasized as a result of their investigation.

The difficulties inherent in the successful treatment of long-standing infection of the kidney are discussed by Braasch and Cathcart in a clinical review of 2,040 patients suffering from chronic pyelonephritis. After a careful study of 251 patients of the group who had been under treatment for from ten to fifteen years, the authors reach the rather discouraging conclusion that probably one third of such patients will recover, one third will be markedly benefited, and the remaining third will not be helped by treatment. Of first importance in treatment the authors consider the removal of foci of infection—about the teeth or in the tonsil, prostate, cervix and in testicular tract. Pelvic lavage, dilatation of contracted ureter, urinary anti-septics—given both orally and intravenously—and vaccines have all been employed in various combinations in different cases. The only conclusion the authors draw is to the relative merits of various methods of treatment, that better results have been obtained with patients in whom foci of infection have been removed than with those in whom this has not been done.

Another addition to the reports of unfavorable results of gastro-enterostomy is that of Lengemann who performed a secondary laparotomy on nineteen patients who had previously undergone gastro-enterostomy. In five cases there was a recurrence of the original ulcer and in nine a secondary peptic ulcer. In a discussion of this report Schwarz stated that of 200 patients treated by gastro-enterostomy at the Hockock Clinic and discharged as cured, thirteen died later of carcinoma of the stomach and seventeen developed peptic ulcer. The reader will probably conclude that these statistics do not constitute valid arguments against the operation of gastro-enterostomy, but rather emphasize the importance of choosing for the operation cases in which gastro-enterostomy definitely indicated, of recognizing the ever present possibility of multiple lesions and of gastric carcinoma and of performing the operation when it is indicated with the least possible trauma. One would be interested to know how many secondary peptic ulcers are due to the use of a nonabsorbable suture in the gastro-intestinal mucosa and the trauma of clamping it on the stomach and intestine during the operation.

A number of other abstracts in this month's issue deserve careful reading. Manne's remarks on the use of iodine in the treatment of gastric (p. 330), Cushing's report of four cases of alveolar osteoma (p. 331) and Cushing and Davis's investigation of the basal metabolic rate in patients with acromegaly (p. 344) are helpful contributions on the surgery of the thyroid and on neurological surgery. Moynihan's paper on diverticula of the alimentary canal (p. 354), Stiggins and Marx's discussion of the value of the roentgenological diagnosis and the treatment of diverticulosis of the large bowel (p. 354) and Lockhart Mummery's review of the present treatment of obstructive lesions of the colon (p. 355) emphasize the constantly increasing importance of being attached to the diagnosis and treatment of surgical lesions of the large bowel. Schoenbauer's report of the results of the treatment of diffuse peritonitis by irrigation with pepsin and hydrochloric acid (p. 343) and Herpin's analysis of the symptoms of delayed hemorrhage following injuries of the spleen (p. 362) concern important phases of the ever widening field of abdominal surgery.

Martin says Do not be caught in the snare of a negative Wassermann A positive Wassermann reaction confirms a positive diagnosis but in the case of a patient 50 years of age or older a negative blood Wassermann reaction means hardly anything except perhaps that the patient is not suffering from general paralysis of the insane Its significance is far outweighed by absence of the ankle jerks and is easily outweighed by a certain type of pigmented scar on a limb

Lawson states that the cure of primary optic atrophy is impossible all that can be hoped for is the arrest of the condition The only treatment which seems to be of value is large doses of iodides

Browning believes that patients progress better under intensive anti syphilis treatment than with out it In tabes the treatment resolves itself into a judicious blend of the old and the new and in each instance the requirements of the particular case must be considered

Felling states that from the point of view of the neurologist ocular syphilis may be divided into three forms of the optic nerve and the various forms of ophthalmoplegia Broadly it can be said that the meningeal types tend to occur at an earlier period after the infection and to be more amenable to treatment than the parenchymatous forms

Harrison says that the incidence of cranial nerve palsies is increased by the omission of mercury or bismuth from the treatment of early cases The use of arsenobenzol in the treatment of syphilis marked a great advance but either mercury or bismuth should be combined with it in early cases if only for the prevention of cranial syphilis Harrison emphasizes also the importance of perseverance in the treatment

Kines reports that for the last two years he has been trying the intravenous injection of sodium iodide in the treatment of this disease In spite of the fact that the doses were large he has never noted any signs of iodism He calls attention to the fact that if it were necessary to inject salvarsan in the late stages of neurosyphilis the Herxheimer reaction might be rather severe and that therefore it might be advisable to prepare the patient by giving him a few injections of sodium iodide before the salvarsan injections

Holmes believes that arsenical preparations are relatively ineffective and that in optic atrophy treatment with mercury is necessary

Rea reports that he has tried several forms of arsenical preparations and found that the best results are obtained with novarsenobillon in the cases of adults and with intramuscular injections of sulfarsenol in the cases of young children

LESLIE L. MCCOY M D

Stiles J H The Principles of Syphilotherapy as Applied to the Eye 4 Ophth 971 29

Stokes a syphilologist arms against the treatment of syphilis except as a general disease with local

manifestations The patient rather than the organ must be treated consequently a general examination should always be made before the treatment is begun to determine the stage and type of the disease the amount and method of previous treatment and the indications and contra indication for any particular therapy

In Stokes opinion arsenphenamine is the best spirillicide mercury is the best resistance stimulator and the iodides are the best agents for the absorption of granulomata Arsenphenamine given in too small doses or doses too far apart is apt to cause sensitization of the tissues and predispose to a Herxheimer phenomenon Mercury by inunction by mouth or in insoluble form in oil acts very slowly and consequently does not rapidly increase the tissue resistance The iodides in small doses do not penetrate well into relatively inaccessible regions such as the nervous system Stokes suggests from six to twelve injections of 0.1 gm of arsenphenamine per 25 lbs of body weight after an initial dose of half this amount injections being given at least once a week and coincident with this treatment the administration of succinimide of mercury intramuscularly and from 15 to 50 or 100 gr of potassium iodide three times a day

He believes bismuth to be a spirochætostatic rather than a spirochætocidal drug—that it holds the infection in check instead of curing it Tryparamide has no virtues in ophthalmic syphilis In nerve lesions of the eye the treatment should be that of neurosyphilis and will require an intensity with which few ophthalmologists of my acquaintance would have either time inclination or equipment to deal

The response is proportional to the preponderance of active inflammatory processes over scar therefore acute inflammatory lesions respond much better than atrophic lesions Little is to be expected from the treatment of optic atrophy In interstitial keratitis intensive treatment should markedly reduce the incidence of relapse and the permanent damage

THOMAS D ALLEN M D

Smith J R Barraquer's Operation B & J Ophth 927 xi 152

Barraquer's operation known as phaco-ecrosis consists in drawing the crystalline lens by its anterior surface separating it mechanically without traction upon or violence to the zonula and extracting it completely out of the eyeball without producing an ectopia or injuring the intra-ocular structures Barraquer's instrument the erisophake is in reality a pneumatic forceps and a zonulotome which is worked by an intermittent or vibratory pump It is upon the vibrations of this instrument that the majority of the claims for the method are based These vibrations or interruptions are produced by varying the intensity of the vacuum which is produced by the internal working of the pump The intensity of the vacuum to be used ranges between 50 and 70 cm Hg and in a

its lumen is about the size of a crow quill but at the point where it opens into the mouth its caliber is considerably reduced. The duct wall is quite dense and moderately thick. The duct arises from numerous branches in the anterior part of the parotid gland. Its course is across and superficial to the masseter muscle. At the anterior border of the latter it turns inward sharply and passes into the substance of the buccinator muscle. It then pierces the buccinator runs obliquely forward between the muscle and the oral mucous membrane and opens upon the inner surface of the cheek opposite the second upper molar tooth. In crossing the masseter muscle it commonly receives the duct of the socia parotidis which is frequently a separate glandular structure.

As a result of section of Stenson's duct a very distressing condition is created in which the saliva drains out on the cheek. Primary repair of the duct should always be attempted as in some instances it is followed by very gratifying results. Secondary repair is much more difficult and its results are not always so satisfactory. If successful repair is not accomplished a salivary fistula is formed. Salivary fistulae commonly persist until death unless infection of the gland occurs. Infection of the gland may be so severe as to require incision and drainage of the gland. In some cases resolution may ensue and be followed by atrophy of the gland a fortunate termination of the condition.

Probably the most satisfactory and easiest method of dealing with fistulae of this portion of the duct consists in converting the external fistula into an internal one. The end of the upper segment of the duct is pushed through the mucosa of the mouth the parotid secretions being thereby drained into the oral cavity instead of onto the cheek. Difficulty is often encountered in locating the distal end of the severed duct but if a filiform or small probe is passed up the duct from the oral cavity its location becomes manifest. The proximal end of the duct can often be located by watching for the site of appearance of the saliva. Careful suture of the severed end of the duct should be undertaken if it is at all possible. Surprisingly satisfactory results occasionally follow such attempts.

MORRIS H. KENNEDY, M.D.

### EYE

Traquair H. M. Visual Field Changes in Pregnancy. *Br J Ophthalmol* 97: 217

The hypothesis that temporal hemianopia in pregnancy is due to the pressure of the physiologically enlarged pituitary gland is rejected by the author because he has been unable to find in pregnant women those field changes which might be expected to correspond to the signs of early pituitary tumor i.e. a normal periphery with a quadrantal change easily demonstrable by colored or small white objects in the region of 10 to 40 degrees from the fixation point. The theory appears

to be refuted also by the fact that in typical bilateral temporal hemianopia due to pituitary tumor a scotoma is always present in the central part of the upper outer quadrant unless the growth has been very slow whereas in the cases of pregnancy studied no such scotoma was found.

However Traquair believes there is ample positive evidence for the psychological origin of the field changes in pregnancy. GEO. G. R. McVITTIE, M.D.

Fisher J. H., Martin F., Lawson S. R., Bowne J. S. H. and Others. Discussion on the Value of Recent Methods of Treatment in the Late Stages of Ocular Syphilis. *Proc. Roy. Soc. Med. Lond.* 1917: 1: 951.

FISHER'S impressions regarding the value of recent methods of treating the late stages of ocular syphilis may be summed up as follows:

1. In modern methods of treatment we have the means of controlling the primary and secondary manifestations of syphilis more rapidly than was formerly possible.

2. The newer methods of treatment are especially efficient in syphilitic disease affecting the vascular tissues of the eyeball. For gummatous manifestations we have always had a legitimate agent in the older drugs provided they were used intelligently and in sufficient doses.

3. There is reason to hope that as the result of the application of modern methods of treatment arteriosclerotic changes may be less disastrous to the central nervous system and the retina.

4. In due time the neurologists may be able to show us that syphilitic disease of the nature of tabes and general paresis has been less distressing since the discovery and more general application of Ehrlich's method.

5. Some of the gains must still be attributed to the better facilities which exist for the treatment of syphilis in its earlier stages and the better control of persons who have become infected.

6. As a result of the improvement of facilities the incidence of inherited syphilis will be very considerably diminished.

MARTIN states that for symptoms due to primary chorioretinal disease of the brain chemical treatment is of little value but in the early stages malarial treatment may give good results. A favorable effect of treatment upon the papilledema of cerebral syphilis and tabes external oculi palpebrae depends to a considerable extent upon the immediate and thorough application of the treatment. After the first few weeks recovery from ocular palsies is governed largely by factors which are not essentially syphilitic and more efficient antisyphilitic remedies will not greatly improve the results. In optic atrophy chemical treatment is of little avail when the condition is acute but if given promptly and thoroughly may retard the progress of other cases. With the use of more efficient antisyphilitic remedies the results are likely to be greatly improved.

According to Barraquer the intact iris constitutes an obstacle to upright delivery as the instrument must pull the lens through the pupil. Hence his statement that in cases of hard cataract total extraction succeeds only with iridectomy. From this it seems that any lens can be dislocated safely by pushing it back into the vitreous chamber where version can be done. When the suction cup is behind the lens it can be disengaged from the vitreous and brought through an intact pupil by pushing instead of pulling and when it is in the anterior chamber it can be brought around the scleral lip easily as the back of the suction cup is against it instead of back of it. The lens must be completely dislocated before version is begun.

If the iris gets in between the lens and the suction cup after the lens is turned it is well to interrupt the passage of the vacuum thereby loosening the cataract and then take hold again. This works well if the iris is caught above or laterally but not if it is caught below because the cup comes off from the lens. Care must be taken not to ensnare the iris below. Location of the lens should always be begun below the lens being pressed backward by supinating the forearm and the zonula then detached above by pressing backward with movements of pronation. During this process the surgeon must not attempt to steady an unruly eye with the instrument. If his hand trembles after the lens has been completely detached it may drop back into the vitreous as the hyaloid membrane is destroyed.

Although Barraquer states that each detail of the method must be carried out minutely in the first operation the author says that he must depart radically from every step. Barraquer recommends the cone scleral incision to include the upper two fifths of the cornea. The author states that it is not always possible to express a cataract in its capsule through an incision of this size. The minimal safe standard is an incision of 180 degrees. An incision of 200 degrees is better. Barraquer warns against making pressure with the instrument on the lens and against compressing the vitreous. He intimates that the hyaloid membrane remains intact. He claims that he has never had a loss of vitreous. He guards against the danger of lid pressure by having his assistant hold the lids.

LESLIE L. MCCOY, M.D.

#### EAR

Wisenbush, G. T. H. Some Neurological Complications of the Ear. *Annals of the Otology, Rhinology and Laryngology*, 1917, 26, 469.

The author states that he has never seen definite parotiditis secondarily to infection of the nasal accessory sinuses. Otitis media occurs in posterior ethmoidal and sphenoidal sinuses but seldom extends to the optic chiasm.

In cases of brain abscess the labyrinth is often misleading. Vestibular tests are of great value in the diagnosis but are not infallible.

In the diagnosis of meningitis it is important to differentiate between the so-called serous or sympathetic meningitis in which prompt surgical intervention is indicated and the purulent type in which operative interference is of little value.

JAMES C. BRISWELL, M.D.

Sears, W. H. Herpes Zoster Oticus. *Illinois Medical Journal*, 1927, 51, 361.

Sears reports three cases of herpes zoster oticus. This condition is uncommon although from 8 to 15 per cent of all cases of herpes are cephalic. Attention is drawn by the author to the complex innervation of the ear.

In 1900 Head and Campbell established that the essential lesion in herpes is a hemorrhagic inflammation of the posterior root ganglia with degeneration of the peripheral and posterior nerves. The infection is usually unilateral but bilateral involvement has been reported. The relationship between varicella, epidemic encephalitis and herpes zoster simplex has not been definitely established. Animal inoculation is extremely difficult.

In the prodromal period the symptoms vary from a mild lassitude to severe chill and prostration. Severe lancinating pains or a burning sensation usually precede the appearance of the herpes. The area in which these sensations appear depends upon the ganglion attacked. Postherpetic pain or hyperesthesia may appear and persist. The first objective sign is a diffuse hyperemia upon which the vesicles appear singly or in successive crops. After a few days the lesions disappear leaving small pigmented areas or cicatrices.

Intra-oral lesions with a definite neural distribution have been observed. Complete facial paralysis and palatal or laryngeal palsies are not uncommon. These palsies are usually temporary but may persist. Deafness of an evanescent or permanent character may be associated with the herpes. Vertigo and disturbance of equilibrium are occasional sequelae.

In a typical case the diagnosis is easy. Cases with swelling and crusting of the auricle may simulate acute otitis media or mastoiditis.

W. M. PATON, M.D.

Wilkinson, G. H. A New Resonance Theory of Hearing or Only a Resonance Hypothesis? *Journal of the Acoustical Society of America*, 1927, 21, 362.

It is generally recognized that the resonance hypothesis which offers a satisfactory solution of all the main facts of hearing is favored by all of the positive evidence but the difficulty lies in the acceptance of its mechanical possibility. It seems absurd to believe that a suite of strings in the cochlea varying in length from 1/8 to 1 mm should be able to resonate to tones ranging over ten octaves. Therefore to establish the resonance theory more direct light on the mechanism of the cochlea is needed.

From reliable investigations we have a complete chain of evidence to show that the receptors

given case is determined by the elasticity of the lens or the state of maturity of the cataract.

With the cataractous process zonular fragility is increased. The zonula is more fragile also in myopes than in emmetropes and hypermetropes. In the zonule of persons more than 40 years old the linear stretching amounts to only 1 mm whereas in young persons it may be twice as great. In an emmetropic eye more than 40 years old a weight of 30 gm is sufficient to break the zonula. In the cataractous eye the weight necessary to produce such rupture diminishes in proportion to the maturity of the cataract. In Colonel Smith's experience the strength of the zonula decreases progressively with age myopes being no exception and is in general unaffected by the onset of a cataractous process. However if the cataract takes the morgagnian line of development the strength of the zonula is reduced below the normal for the patient's age.

The attempt must be made to regulate the intensity of the vacuum in proportion to the hardness of the cataract. The latter may be determined with great accuracy by examining the eye after dilatation of the pupil measuring the depth of the anterior chamber and the distance between the two capsules and by means of the focal illumination of Gullstrand and the corneal microscope of Zeiss with the graduated drum, determining whether there are any transparent portions in the lens.

It is claimed that in phacocresis the greater the altitude of the vibrations the nearer the zonula is ruptured to the suction cup of the pneumatic forcep. As the intensity corresponds to the height of the waves the fibers of the zonula do not rupture when the intensity is insufficient whereas when the intensity is excessive the capsule may be broken. Rupture of the zonula at the moment the cataract is drawn upon indicates that the vacuum employed is of excessive intensity.

Finally the adjustment of the intensity of the vacuum and the altitude of the vibrations to the strength of the zonula must be considered. When the cataractous process is not well advanced the zonula is usually less friable and a greater number of interruptions of the vacuum is necessary. In the eriphake the number of interruptions increases as the intensity of the vacuum is diminished by the regulator.

All of the claims for phacocresis have been based on the hypothesis that the rupture of the zonula close to the periphery of the lens in this method is due to the vibrations.

In an illustration Barraquer has shown the lens to be dislocated immediately by the application to it of the vacuum and vibrations but the nucleus is portrayed as being displaced through the soft cortical matter toward the suction cup and gripped by it even though the lens capsule is intact. He says:

By the rarefaction of the air in the suction cup it adheres to the lens deforms it by shortening its greatest diameter and displaces the nucleus.

A simple experiment with fresh human cataractous lenses however will show that this does not occur. The capsule and as much soft cortex as it will hold are sucked into the cup. If the nucleus is large and the cortical matter is small in amount the capsule is drawn tightly around the former. If the cataract is of the morgagnian type the small nucleus adheres to the bottom of the fluid in the bag in which it is contained. Consequently the application of the vacuum takes up little of the slack in the anterior lens capsule. If the zonular attachment is weak there is a dislocation of the lens but if it is strong the attachment will not break until the strain is increased by pulling or pushing and the break will occur at the weakest point regardless of the vibrations. If the capsule is weak in relation to the intensity of the vacuum employed it may burst. This can be very well shown in experiments on pig eyes fresh from the slaughter house.

Barraquer's successful results in cases of cataract in which the zonula is very strong seem to be due not to the pulling but rather to the location of the lens by pushing it boldly back into the vitreous though not sufficiently to cause lysis of the vitreous. The vitreous presses well forward around the lens to fill the space vacated by the latter. There is no reason why there should be a lysis of vitreous as no pressure is applied to the exterior of the walls of the globe to deform them and reduce the capacity of the vitreous chamber.

Cruckshank has explained why the surgeon must not attempt to turn the lens over inside the eyeball but he misses the point that while the lens must be rotated about a transverse axis which lies in the plane of the suction cup the shaft and handle of the instrument are set at an angle of about 45 degrees with that plane and this gives the surgeon leverage which exerts immense force on the lens without its return and compels him to swing the handle about that axis by movements of pronation or supination of the wrist and forearm. It appears moreover that the sensations of the finger tips at the pogod as the instrument must be gripped constantly to press the valve which transmits the vacuum to the suction cup. One successful operator has stated that there is some tick in the use of the instrument at which he could not explain.

Cruckshank says also that because of its tendency to slip or to be dragged off the suction cup as it comes through the incision the lens must not be pressed against the posterior surface of the cornea during the final stage of its delivery. He does not mention however the danger presented by the sharp scleral lip of the wound when the lens is brought out. This lip presents also another difficulty in that if the attempt is made to separate the lens from its depression in the vitreous in order to bring it around the scleral lip the chesion between the two surfaces will tend to pull the lens from the suction cup. The lens must be separated from the vitreous by swinging it around on a transverse axis so as to slide apart the two surfaces in contact.



affected by radiation than similar growths elsewhere in the body

Carcinomata of the larynx have been classified as (1) intrinsic arising from the cords, ventricles, ventricular folds, arytenoid and subglottic area and (2) extrinsic arising from the epiglottis, arytenoids, aryepiglottic folds, pyriform sinuses and the pharyngeal surface of the cricoid cartilage.

The intrinsic form is the more common. The structures most often primarily involved are the vocal cord. The condition develops slowly. Metastasis is late because of the confined arrangement of the laryngeal lymphatics.

The extrinsic form metastasizes early but the prognosis should not be as hopeless as is generally supposed. In all cases of chronic cough, laryngitis or hoarseness and in those in which a tumor is known to be present, cancer should be excluded. Because of extensive involvement that had been allowed to occur before a correct diagnosis was made, not one of seventy-five cases of carcinoma of the larynx seen in five years was suitable for laryngofissure. In all cases with any suspicion of malignancy whatever an examination should be made by a skilled laryngologist. In the last stage of the disease with dyspnoea, foul breath, gland enlargement, etc., the diagnosis is evident.

The differential diagnosis of carcinoma, tuberculosis and syphilis is difficult. Two of these diseases may occur simultaneously. In all cases skillful and repeated laryngoscopic examinations followed by biopsy should be made.

In 1925 about 5 per cent of the 78,000 deaths from cancer were due to cancer of the larynx. Operable cases should be treated surgically when possible. Radiation has been disappointing. Radiation should be used in inoperable cases in which an operation is refused and for the postoperative treatment of the extrinsic form of cancer.

For the intrinsic form the treatment should be laryngofissure for growths limited to the cords and total laryngectomy for all others. Endolaryngeal removal and hemilaryngectomy are not recommended.

If laryngofissure is done, fulguration of the growths is preferable to excision because it prevents hemorrhage, lessens pulmonary complications and usually obviates tracheotomy.

For cases with extensions beyond the cords, total laryngectomy is the only means of possible cure. Many patients who have had this operation are alive and able to work after from two to five years and have splendid vocal voices. A one-stage operation under rectal anesthesia is done. The head is placed lower than the body and extended to bring the neck into prominence. A T incision is made from the hyoid down and across the thyroid. All tissues and muscles superficial to the larynx and trachea are reflected or cut. The larynx is completely freed from attachments and all bleeding controlled.

The trachea is then opened between the cricoid and first ring; a flap of mucous membrane from the

posterior surface being saved if possible for suturing forward to the skin. This is an effective barrier which keeps secretions from entering the trachea during convalescence. The larynx is then pulled upward and separated from the trachea and a rubber tube is inserted into the trachea to protect respiration.

The larynx is dissected free from below upward to above the arytenoids and returned to its normal position. An opening is then made into the hypopharynx in front through the thyrohyoid membrane. The entire buccal cavity is packed with iodoform gauze and a careful inspection of the growth is made. As much as possible of the mucous membrane is saved to aid in closing the pharynx, but if the growth is extrinsic wide excision becomes necessary.

A feeding tube is put through the nose into the stomach and the pharyngeal opening closed with two rows of No. 6 catgut.

The trachea is attached to the skin by removing all fat from the skin edge and the first ring of the trachea submucosally.

The muscles are closed in the midline. Drains are put in all four corners of the wound and brought out at the midline just above the tracheal opening. The transverse skin incision is closed. The midline incision is left open around the drains. A No. 8 tracheal tube is put in place and the wound dressed with bichloride gauze.

During the first ten days after the operation competent nursing is essential. Drugs that inhibit the cough reflex should not be given. Suction apparatus and a bronchoscope should be on hand to keep the trachea clean. The tube should be cleaned often and all necessary instruments should be close at hand. The patient should be propped up the day after the operation and should be out of bed on the third day. Swallowing attempts should not be allowed the first few days. The mouth must be kept clean. Liquid food of suitable caloric value should be given. The bowels and kidneys must be kept active.

Pneumonia is a very serious complication. To prevent it the trachea must be kept free of secretions and blood clots.

Secondary hæmorrhage may occur from sloughing. Mediastinitis is rare following operation by this technique.

If cough may be relieved by changing the position of the feeding tube.

Dyspnoea may result from the clogging of the trachea with blood or secretions.

In cases with extensive involvement it may be necessary to remove more tissue even including the common carotid, the internal jugular and the vagus nerve on one side. An œsophageal neck fistula may be necessary temporarily.

For extrinsic growths high up around the epiglottis and the base of the tongue a subhyoid pharyngotomy is done, the growth excised with the radio knife and the wound closed without drainage.

for different pitches are discrete and independent. The ear analyzes not only the pitch of sound but also the relative intensities of a complex mass of sounds and the frequency of the constituent simple waves. Therefore the analysis according to frequencies can be done only by resonance. The islands of hearing in the congenitally deaf point to an arrangement of the tone receptors in a continuous graduated series.

In an attempt to solve this problem the author conducted experiments in which a working apparatus embodying the physical conditions found in the cochlea was subjected to vibrations of different frequencies to determine whether the latter produced a series of localized responses at level varying with the frequencies employed. Wilkinson believes that the models showed this gradation of response according to pitch levels thus illustrating in a remote fashion the delicate resonance mechanism of the cochlea. His theory of cochlea function is that the fibers of the basilar membrane resembling the strings of a musical instrument are differentiated by length, tension and mass, the latter being the loading of the basilar membrane by columns of fluid intervening between the round and oval windows. Such a differentiation and the evidence of the models give a fairly comprehensive resonance theory of hearing which explains the method by which tone impressions are transformed into sensations of tone.

GEORGE R. McAUILLIFF, M.D.

Fraser, J. S. A Case of Congenital Deafness Showing Malformation of the Bony and Membranous Labyrinth on Both Sides. *J. Laryngol.* 1927, 41, 315.

The author reports a case in which the right ear showed the developmental errors in the bony and membranous labyrinths described by Mondini and Alexander while the left ear showed a rudimentary vestibule a cochlea containing no neuro-epithelium and complete absence of the semicircular canals. The patient was a boy 5 years of age the youngest of twelve children all of whom were born healthy. He showed some hydrocephalus and was very poorly developed. Death occurred during ethyl chloride anesthesia for removal of the tonsils and was attributed to status lymphaticus.

On microscopic examination the right middle ear showed poorly developed stapedius and tensor tympani muscles a fossa subquadrata not lined from the tympanic antrum to the posterior fossa and a round window largely filled up by folds of mucous membrane. In the inner ear the cochlea was flattened and the modiolus poorly formed. The scala vestibuli was wide and showed some connective tissue. The membrana tectoria was deficient. The utricle contained imperfect neuro-epithelium. The otolith membrane was also imperfect. The crista of the lateral and posterior canals were not well formed. The cochlear nerve and the vestibular ganglion showed cellular infiltration.

Examination of the left ear showed practically normal middle ear structures. In the inner ear the cochlea consisted of only a single coil. The modiolus was absent and there was no cochlear nerve no aqueduct and no division into scala tympani scala vestibuli and scala media. In fact no neuro-epithelium was seen at all. The vestibule was a small deformed space without sacculus or utricle. No semicircular canals were present.

Three possible causes of the labyrinthine changes are: (1) a developmental error in the germ plasma (sporadic congenital or constitutional deafness) (2) inherited syphilis and (3) intra uterine meningitis of non specific origin. GEORGE R. McAUILLIFF, M.D.

Smith, J. M. The Management of Internal Ear Infection. Report of Six Cases. *Laryngol.* 1927, 41, 333-334.

Smith states that the manifest symptoms of meningitis are preceded by an increase in the cells in the spinal fluid. He believes that the dura should not be opened or the Neumann operation performed when there is absence of free bacteria in the spinal fluid.

A labyrinth operation is contra indicated in cases of perilymphitis and when functional activity still persists.

The best labyrinth operation is the Hinsberg procedure. JAMES C. BRASWELL, M.D.

Kopetzky, S. J. and Almour, R. Erysipelas Following Bacillus Pyocyaneus Infection in Mastoid Wounds. *Am. J. S.* 1927, 58, 1.

Kopetzky and Almour report five cases of erysipelas following bacillus pyocyaneus infection on the mastoid wound. In three of the cases the streptococcus hemolyticus was present in the pus in the mastoid process but after the appearance of the pyocyaneus infection it was killed off and could not be isolated in cultures. JAMES C. BRASWELL, M.D.

## NOSE AND SINUSES

Lewis, F. O. The Treatment of Cancer of Paranasal Sinuses, Tonsils and Larynx. *S. G. Clin. Am.* 1927, 7, 339.

In cancer of the paranasal sinuses tonsils and larynx very gratifying results may often be obtained when the condition is recognized early and prompt rational treatment is given.

For antral growths the external opening advocated by Greene may be used. This remains open a day has the advantage of allowing thorough inspection of the area at all times and if necessary the repeated application of radium. One patient who had an adenocarcinoma is well after four years and the opening is now to be closed. This form of carcinoma offers the best prognosis. Of twenty-eight cases of carcinoma of the antrum all but three were hopeless.

Carcinoma of the tonsils should be treated by radium in preference to operation if seen early enough for curative treatment. It is more favorably

who are receiving iodine in preparation for operation should be under close supervision as the long continued use of iodine in this type of disease is decidedly harmful in a vast majority of cases

R. A. B. SHIER, M.D.

**Elehster G. Fistulae and Stitches Abscesses**  
Following Goiter Operations (Zu Frage der  
Fistelbildung und der Ligatur in der  
Halsoperativen) Chir. Zbl. Ch. 97: 1921

Elehster reviewed 150 cases of goiter which were operated upon in the von Eiselsberg clinic in the period from October 1923 to October 1924. One hundred and seven of the patients were females. It was found that in from 30 to 60 per cent of the cases stitches were discharged sooner or later and that in 74 per cent fistulae were formed which in some instances persisted for three years. Healing occurred in a period of fourteen days without fistula formation in 26 per cent of the cases.

Careful hemostasis covering over of the remains of the thyroid, the leaving of smooth surfaces and care in the use of drains are of special importance. Operation should never be attempted in the presence of even the slightest infection or angina. In the cases renewed paraffinized glass drains were employed. The treatment of ligature fistula consisted in the use of lunar caustic and salves. In some instances the entire fistulous tract was excised.

BERGEMANN (Z)

**Richter H. M. and Zimmerrman L. M. Latent Postoperative Tetany** St. G. G. v. C. 1925  
9: 167

Postoperative tetany is usually thought of as one of the after-effects of complications following thyroidectomy. Statistics from various clinics show that its average incidence is slightly more than 1 per cent. The incidence of manifest tetany in the authors' cases was 1.15 per cent. It was noted however that certain patients showed evidences of increased neuromuscular excitability that is a latent tetany without the clinical manifestations of the condition.

In a series of 100 consecutive cases studied for postoperative tetany and Trouseau signs, positive reactions were observed in fourteen. If the electrical excitability had been measured and the observation had been made more frequently, the number of positive cases would undoubtedly have been higher. In some of the positive cases a fall in the blood calcium could be demonstrated but on the whole there were no striking differences in the calcium levels in tetanic and non-tetanic cases. Apparently sufficient damage had been done to the parathyroids to increase the nervous excitability but not sufficient to cause a gross disturbance of the calcium metabolism. This suggests that the calcium deficiency is one of the associated phenomena rather than the cause of tetany.

In most instances the tetany remained latent but in two manifest symptoms became apparent

and active tetany developed. The ever present possibility that latent tetany may become active when an unusual demand is made upon the parathyroid, such as occurs in seasonal change, trauma, infection, menstruation, pregnancy and lactation, demands the early recognition and treatment of latent cases.

The phenomenon of latent tetany after goiter operations has been reported from various clinics and is thought to have become more frequent since the war together with increased frequency of spontaneous neuromuscular hyperexcitability which has been attributed to faulty nutrition due to the war. Of the author's series of cases three showed positive Chvostek signs. Obviously the impaired nutritional states that prevailed in central Europe during and after the war could not account for the occurrence of the tendency toward the development of tetany in these cases.

The incidence of latent postoperative tetany varies with the extent of the operation. The size or type of the goiter seems to have no bearing whatsoever. The parathyroid insufficiency seems to be due directly to mechanical operative trauma. The mildness and transient nature of the symptoms speak against gross material damage. In none of the thyroid specimens removed at operation during the past year could parathyroid bodies be identified either grossly or microscopically. It is much more probable that the symptoms are due to slight injury such as that caused by pressure from a hemostat inclusion in a ligature or pressure due to hemorrhage or edema. Interference with the vascular supply to the glands may explain temporary disturbances of function which disappear when the circulation is reestablished. Tetanic manifestations appearing late are probably due to injury from cicatricial contraction.

The prophylactic treatment of tetany is directed toward the prevention of operative injury to the parathyroids. Numerous procedures have been advocated for this purpose. The number and location of the glands is extremely variable and in the presence of goiter the variations become greater. Care must be taken in the handling of the tissues, particularly the posterior layer of thyroid tissue must be preserved. In spite of all precautions, however, a certain number of injuries to the parathyroid glands are unavoidable if thyroidectomies are made sufficiently radical to cure toxic goiter.

Active treatment has been directed toward the relief of symptoms and the replacement of lost tissues. Calcium in large doses will control the manifestations of tetany and tide the patient over the acute stage of parathyroid insufficiency until the parathyroids have recovered or regenerated or the body has adapted itself to their loss. Replacement therapy by feeding, injecting or transplanting had fallen into disuse until the active principle isolated by Collip (parathormone) became available. This preparation has been used

## NECK

Reik W P Branchiogenic Tumors of the Neck  
Surg Clin N Am 1927 1 453

Branchiogenic tumors have been studied for years as salivary gland tumors. Interesting articles upon them have been published by Wood Wilson and Willis and McFarland. The cases reported to date number 350. The author reports ten cases.

Branchiogenic tumors are characterized by a location in the lateral aspect of the neck, most often in the parotid region, a history of long duration, a slow growth often becoming accelerated, and a tendency to become curable by local excision. Some of them erode and compress locally while others form distant metastases.

Structurally the tumors are of a mixed type showing mesenchymatous tissue, cellular and hyaline connective tissue, cartilage, endothelial cells and squamous cells. The histological appearance is one of malignancy. McFarland has said that all mixed tumors of the neck are branchiogenic but that all branchiogenic tumors are not mixed.

The first four of the ten cases reported by the author were typical. All of the patients are living and apparently cured. The six other cases ran a fatal course, three with distant metastases.

The benign group of cases yield well to excision but poorly to radiation. Because of the tenacity of physicians today to radiate malignant tumors it is imperative to make an accurate diagnosis at the patient's first visit. The points in favor of a diagnosis of malignancy are pain and rapid growth, deep fixation, short duration, and older age incidence of the tumor. R V B Smith M D

Marline D The Use and Abuse of Iodine in the Treatment and Prevention of Goiter  
Ct Med 97 94

The author calls attention to the fact that the thyroid gland undergoes a definite cycle of cell changes and so far as is now known only one cycle during the development and regression of goiter. Degenerations, atrophies, hemorrhages, cyst formation, etc. are secondary and should be separated from the primary changes.

On the basis of the physiology, chemistry and pathology of the gland, disease disturbances may be classified as (1) thyroid insufficiency (a) simple goiter (b) myxedema (2) Graves disease.

Iodine has been used in the treatment of goiter for one hundred and seven years and in its prevention for ten years. Since the discovery of iodine as a normal constituent of the thyroid, research in the fields of physiology, chemistry and pathology supports the view that simple goiter is a work hypertrophy depending upon an absolute or relative deficiency of iodine, the etiology of which is not clear. The absolute deficiency manifests itself in cases of endemic goiter while the relative deficiency is seen in sporadic goiter of adolescence, pregnancy, infections, abnormal diets and Graves disease.

The amount of iodine required to prevent the onset of goiter is 0.1 per cent of iodine per gram of thyroid gland. Experiments by Lenhart and the author showed that 1 mgm of iodine given by mouth once a week was ample to prevent thyroid enlargement in puppies living under conditions as which produced goiter in controls. It was shown also that adding iodine to water one part per million on completely protected brook trout. Feeding whole hashed sea fish once a week, also protected brook trout. The observations of other workers indicate that 1 mgm per week not only prevents but causes regression of thyroid enlargement in children. The amount of iodine required for the prevention of goiter in man is exceedingly small, being about 0.1 mgm daily, that is a total of 36 mgm yearly.

Two plans of goiter prevention are now on trial. First, the use of tablets containing 1 mgm or more of iodine given at weekly intervals and second, the use of iodized salt. The author is convinced that the general use by the public of iodized salt of too high an iodine content has been productive of much harm in the management of goiter. Experiments in salt administration are being carried out in Switzerland and it is under more favorable conditions than in the United States due attention being paid to the physiology and pathology of the thyroid and the iodine content of the salt placed upon the market being carefully estimated. The author is convinced that Graves disease has been caused or aggravated by the excessive use of iodized salt but is certain also that the injury done in this way has been negligible in comparison with the injury now being done by the excessive use of iodine in other forms. The use of salt is the most natural and the simplest means of distributing the traces of iodine required in food if adequate control can be established.

With regard to iodine in the treatment of simple goiter, the author advocates the administration of 100 mgm of iodine daily for a period of two weeks. If after two weeks examinations show no changes in the pulse rate or body weight, the treatment may be repeated. After an interval of four months to two weeks, 10 mgm daily should be given for a period of two or three weeks. Syrup of hydriodic acid and syrup of ferrous iodide in 5 cc doses are suitable preparations for administration. The author points out that 1 cc of Lugol's solution contains approximately 12.5 mgm of iodine. It will be seen that the amount of iodine used in the treatment of goiter is fifty times greater than that recommended for prevention.

With regard to iodine in the treatment of Graves disease, the author believes that iodine decreases the exhaustion crises so characteristic of the disease and lowers the operative mortality not primarily because of a lowering of the metabolic rate but because iodine in some unknown way raises the patient's resistance. Patients with Graves disease

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

Villaret M and Balby J The Outcome of Craniocerebral Injuries as Evidenced by Re Examination of 500 Patient from Ten to Twelve Years After the Accident (L'avenir de la mort cérébrale o-cébré u b é ur lét de élec t néed 500 c r sd à d e a sap slables su ) *Press méd Pa* 97 89

Of 500 patients with craniocerebral injuries re examined from ten to twelve years after the accident 26 per cent had late complications consisting in an increase in the existing disturbance or the late appearance of subjective motor sensory or mental disturbances or epilepsy.

Lesions limited to the external table were not so benign as expected as they led to late cerebral complications such as headache vertigo memory defects cerebral fatigability or epilepsy. The superficial skull wounds followed by nervous or psychic troubles may have been produced by violent accidents which injured the subjacent brain. In the cases of patients seeking compensation the interpretation of the subjective symptoms requires great care.

In cases of wounds without brain injury in which the dura was injured by the accident for surgical exploration for the evacuation of fluid and in which the immediate danger of meningeal infection had passed late complications were less frequent and usually consisted in epilepsy.

Unventilated subdural hematomata caused subjective disturbances and epilepsy in every case. The immediate danger of opening the meninges however is very great and perhaps exceeds that of the late disturbances. Whenever subdural hematoma left unopened at operation fear of infection this will be taken into consideration when the disability is estimated.

Cranial injuries with cerebral destruction were most apt to develop late complications. Every moment made in the traction of a foreign body renders the prognosis less favorable. Old unacut abscesses nearly always led to trouble doubtless from the progress of cicatricial reaction at the site of the cavity. Foreign bodies retained in the brain were well tolerated generally and showed no special tendency to cause late disturbances. The complications were due not so much to latent infection as to irritant lesions or catarrhes of the cerebral coverings in which the foreign bodies were located or through which they had passed.

The late mortality in the cases reviewed was low 1.34 per cent. In cases reviewed by Tuffier and Colla it was 1.5 per cent. The chief causes of death were a slowly developing brain abscess or

some condition made worse or developed at the time of the cerebrospinal injury.

Subjective disturbances were increased when the dura was unopened and were often related to the cicatricial changes in an unacut hematoma. They were not verifiable by an objective examination and at times were maintained or augmented by anxiety over compensation.

Epilepsy the most frequent complication sometimes developed late. In eight cases it developed after a year in five cases after two years in three cases after three years in five cases after four years in three cases after six years in five cases after seven years in two cases after eight years in three cases after nine years and in one case after eleven years. The period of latency was in inverse proportion to the depth of the wound ranging from five to seven years in lesions of the cranium alone to from one to four years in injury of the meninges or brain. Epilepsy developing after a simple skull lesion tended to disappear (fourteen of twenty three cases). Its complete cessation and recurrence after from seven months to seven years occurred in cases of deep serious lesions (seven cases of which three were cases of cerebral abscess and two were cases of retained projectiles). At times it became progressively more marked after an evolution of variable duration (up to ten years). Even when it became general very rapidly it was nearly always of the Jacksonian type at the onset. Of ninety-one such cases seventy-nine showed injury of the parietal region and in the twelve others the lesion touched the motor area or there was an extensive bone flap prosthesis or a hematoma at the level of the fissure of Rolando.

Motor disturbances such as spastic paralysis occurred only when the Rolandic area was more or less destroyed. They showed no tendency toward regression. The contractures increased progressively. The functional interference became greater and the disability became complete in from three to ten years. The flaccid paralysis showed no tendency to grow worse but never completely disappeared. The monoplegias and hemiplegias evolved alike.

Severe types of mental disturbances were exceptional and related directly to frontal lesions. They consisted in melancholic depression chronic psychoses and at times total disorientation necessitating institutional care. The more benign types were the residual psychic syndromes such as the disturbances of memory attention and character described by Villaret and Mignard.

Disturbances of vision never persisted in their primary severity but never completely disappeared and always left concentric shrinkage of the visual fields homonymous or scotoma. They were not

with very gratifying results. Tetany may be controlled by changing the intestinal flora to the aciduric type. The régime developed to accomplish this consists in a meat free diet, liquids in large quantities, a minimum of 1 qt. of milk daily and from 200 to 300 gm. of lactose per twenty four hours. In severe cases the administration of water in large quantities by means of a duodenal tube or the injection of the parathyroid hormone will give prompt relief.

Major R. H. Orr, T. G. and Weber, C. J. Observations on the Blood Guanidine in Tetania Parathyreopriva. *Bull. J. Am. Hosp. Assn.* 1917, 1: 287.

A possible relationship between tetania parathyreopriva and guanidine intoxication has been suggested and experimental work showing an increase in the blood guanidine after thyroparathyroidectomy has been presented in support of this theory. By means of a colorimetric method the authors have found it possible to demonstrate methyl guanidine in the blood in amounts as small as 0.2 mgm. per 100 ccm. With the use of this method they determined the blood guanidine content in a group of animals after the injection of varying amounts of guanidine compounds. Whenever the amounts injected were sufficient to produce tremors and convulsions a marked increase in the guanidine content of the blood could be demonstrated. Doses of guanidine hydrochloride insuffi-

cient to produce symptoms—i.e. in doses as small as 0.05 gm. per kilo—produced a distinct rise in the guanidine content of the blood when injected subcutaneously.

In a series of animals the blood guanidine was studied after parathyroidectomy. In one of six dogs with tetania a possible increase in the guanidine content of the blood was found during an attack of tetania but in none of the other determinations was such an increase detected. However all of the animals with tetania showed an increase in the urea nitrogen and non protein nitrogen in the blood.

Leo M. Zimme, M.D.

West, R. The Nature of the Laryngeal Vibration. *Arch. Otol. & L.* 1917, 385.

As the result of the examination of a patient with atrophy of the left vocal cord the author attempted to determine the physical difference in the production of sound waves and whether the bands vibrate in parallel or opposite phase.

From experiments with an artificial larynx the larynx of a cadaver and vibrations from a resonating surface in conjunction with studies of the movements of the surface of a normal phonating larynx the conclusion is drawn that each cycle of laryngeal vibration consists of one complete movement of each of the two vocal bands that these movements are in opposite phase and that vocal sounds are controlled in pitch by the adjustment of the pharynx.

William E. Shacklee, M.D.

hemorrhagica interna of spontaneous origin. In all of the cases reviewed they were relatively late sequelae of injury to the head some of which were major but most of which were minor the patient coming to autopsy or operation from six weeks to eight months after the trauma. In every instance a massive subdural hemorrhage in various stages of formation or recession and surrounded by a dense crete capsule was found.

According to Trotter there can be little doubt that the bleeding is of venous origin and occurs from the vessel passing to the superior longitudinal sinus. The hemorrhage occurs commonly in the frontal and parietal regions and may be bilateral. The bleeding is probably slow allowing for a compensatory accommodation up to a certain point. Aside from the deformity caused by pressure little pathological change is seen in the brain either grossly or microscopically.

The symptoms are variable depending upon the position and extent of the hemorrhage. Increased intracranial pressure manifests itself as usual.

The 14 cases reviewed are reported in detail. The results of surgical intervention are quite good. The condition is probably more frequent than is commonly supposed. The symptoms may not develop until a long time after some trauma supposed to be very trivial. Choked disk is usually present and is frequently more advanced on the side of the hematoma. The age of the patient is apparently not a factor. In the cases reviewed the ages varied from 13 to 90 years.

In some cases the formation of an osteoplastic flap and removal of the hematoma and sac may be the treatment of choice but in one case an equally good result was obtained by aspirating through a simple trephine opening and leaving the membrane.

The hematoma does not tend to recur.

CLARENCE ANDERSON, M.D.

Symptoms C P    Some Points in the Diagnosis and Localization of Cerebral Abscess    P R y  
Soc Med Ed L d 07 x 139

The discussion is limited to cerebral abscess of otitic origin suppurative and localized non-suppurative encephalitis.

The early symptoms of cerebral abscess are chiefly those of sepsis. In the early stages headache is usually present but not severe. Later the picture may change to one of suppurative encephalitis with severe headache and signs of increased intracranial pressure. If the process becomes well walled off only the signs of pressure remain. The headache usually increases when the patient awakens and is increased by stooping and coughing. Severe headache is accompanied by vomiting drowsiness and a low pulse probably due to an obstructive interstitial hydrocephalus and if the circulation is not relieved the condition may be fatal.

The history of a previous otitis media and any accompanying infection is of importance. The signs of cerebellar abscess are headache which

at first suboccipital and later bifrontal or general incoordination which is most marked in the upper homolateral extremity and is best shown by the finger nose finger test nystagmus which is usually homolateral and sometimes an unwillingness in conjugate deviation toward the affected side. Temporal lobe abscess when situated on the left side may result in aphasia if the patient is right handed. To determine the presence of the aphasia many tests may be necessary. Three signs of importance which are common to temporal lobe abscess on both sides are (1) slight contralateral weakness of the lower facial muscles of expression (2) absence of or a decrease in the abdominal reflexes with increased tendon jerks or an extensor plantar response and (3) a defect in the visual field from involvement of the optic radiation. The otitic abscess has as a rule in the lower part of the temporal lobe and is therefore likely to affect first the inferior bundle of the radiation producing a homonymous defect in the superior quadrants of the opposite fields.

In a case of localized cerebral abscess the cerebrospinal fluid is clear and contains a slight excess of cells (mainly lymphocytes) varying from eighteen to twenty five per cubic millimeter. The protein content is increased and sugar reducing bodies are present. A preponderance of polymorphonuclear in the fluid with diminution of chlorides and absence of sugar reduction is usually associated with clinical evidence of meningitis and means that the abscess is leaking into either the ventricular system or the subarachnoid space.

The distinguishing signs of a superficial abscess are sudden onset of convulsions or paralysis of the cortical type and a clear spinal fluid containing lymphocytes. The author reported one case three years ago and in this article reports another.

Symonds believes that in the course of formation of any cerebral abscess there is a pre-suppurative stage of inflammation with engorgement exudation and swelling and that in some cases this process may become arrested and resolve without pus formation. This seems to him to be the most probable explanation of cases in which the signs of a cerebral abscess are present at one time but do not appear without the evacuation of pus. He reports three such cases—one that of a boy who had two negative explorations over the right temporal lobe and ultimately recovered another that of a man with undoubted involvement of the left temporal lobe and recovery without exploration and the third that of a boy with signs of right temporal lobe abscess and recovery six weeks after a negative exploration. Adson has reported three similar cases in children in which the condition developed after otitis media. In two exploration was done but no abscess was found. One patient recovered without exploration.

Such cases show that when the general and local signs of cerebral abscess are present a negative exploration does not necessarily mean that an

con tantly present in occipital injuries (thirty of 180 cases)

Cranioplasty did not ameliorate the condition and were nearly always followed sooner or later by Jacksonian epilepsy, especially when they were performed in the region of the fissure of Rolando. Complications after cranioplasty (20 per cent of the cases) were the same as in cases without a prosthesis. The condition became aggravated more frequently in cases with a metal prosthesis than in those with an autoplasmic prosthesis.

The authors conclude that the late prognosis of cranial lesions should be very reserved and that when examination is negative the relative frequency of late complications should be borne in mind in the estimation of disability compensation.

WALTER C. BURKET, M.D.

Cushing H. and Da Costa L. M. Studies in Acromegaly. *The Basal Metabolic Rate*. *J. Clin. Invest.* 1927, 6: 73.

The observations here reported were made in seventy-two cases of acromegaly in forty-nine of which the basal metabolism ranged from +2 to +61 with an average of +18.6. If cases with an average rate below +10 are excluded there remain thirty-two cases in which the average rate was +26. In twenty-three cases the rate was subnormal but only six of these had a rate lower than -10. In contrast the rates of 107 proved cases of hypopituitarism with chromophobe adenomata were found to average -14.

Acromegaly and goiter are often associated. In four such cases in which thyroidectomy was performed the thyroid was found to be of the colloid type without the expected evidences of toxicity but there was a fall in the metabolic rate after the operation. In another case a very striking fall in the rate followed the administration of Lugol's solution. Some cases show a fall in the rate following hypophyseal irradiation.

The results of surgical procedures are more significant and striking. In eight cases in which both pre-operative and postoperative readings were made there was an average reduction of 16% in the metabolic rate.

In twenty-four cases of hypopituitarism associated with surgically verified chromophobe adenomata the drop in the metabolic rate after operation averaged only 16%.

Acromegaly is a disease bearing the same relation to pituitary insufficiency that exophthalmic goiter bears to myxedema. The first is an expression of hyperpituitarism just as the second is an expression of hypothyroidism. Acromegaly is often accompanied by an increase in the basal metabolic rate and hypopituitarism by a subnormal basal metabolic rate. In acromegaly there is enlargement of the thyroid with symptoms suggesting toxicity. The increase in the basal metabolic rate is attributed to the latter. When such cases have been operated upon the gland has been found to

show colloid change of an adenomatous type but even so the basal metabolic rate has fallen after the operation. On the other hand operations on the chromophilic hypophyseal adenoma itself in cases of acromegaly in which the basal metabolic rate is elevated are followed by a fall in the metabolic rate almost as uniformly and strikingly even in the absence of palpable enlargement of the thyroid as are operations on the thyroid in exophthalmic goiter.

It may be concluded that the chromophilic cells of the anterior lobe of the pituitary body secrete a substance which not only contains the hormone of growth but is capable of raising the basal metabolic rate. This may act independently or through the intermediation of the thyroid. In either case the elevation of the basal metabolic rate may properly be ascribed to the hyperpituitarism.

GILBERT C. ANDERSON, M.D.

Kosyrew A. A. Drainage of the Cerebral Ventricles by Strips of Omentum. (*Dr. nag. d. r. H. m. e. trinkel. ch. Netzeil. J. Arch. f. Klin. Chir.* 1916, 6: 160).

Kosyrew has found that freely transplanted strips of omentum show no tendency to form dense adhesions with brain tissue, remain free from necrotic processes and furnish reliable drainage material. In draining the cerebral ventricles by means of such strips he attempts to avoid denudation of the surface of the brain and injury to the vessels of the brain as much as possible and to obtain a double drainage of the ventricular fluid in the subdural and subarachnoid space as well as below the galea.

The procedure begins with the formation of two horseshoe-shaped pedicled flaps of different sizes consisting of skin and galea and pterion and bone respectively with their bases opposite each other. A strip of omentum is then introduced through a slit in the dura so that one end is in the ventricle while the other is drawn for a short distance beneath the dura and then through a second slit is brought out upon the surface of the dura and from there led beneath the galea through a trephine opening in the flap of pterion and bone. The periosteum and bone flap of the skin and galea flap are then sutured.

In this manner Kosyrew has operated upon eleven cases, two of them bilaterally. Two of the patients died but the rest showed improvement throughout observation periods of at least nine months. W. E. (Z)

Rand C. W. Chronic Subdural Hematoma. Report of Seven Cases. *A. J. S. G.* 1927, 36.

Seven cases of subdural hematoma have formed the basis of this report. These hematomas differ symptomatically and pathologically from the meningial type of epidural or subdural hematoma which generally follow head injuries and more closely resemble the picture of pachymeningitis.





abscess has been missed. In such a case therefore it may be wise to allow sufficient time for a possible spontaneous cure before proceeding to a second exploratory operation.

ALBERT S C AWFORD M D

Buzard E F The Treatment of Traumatic Facial Palsy is *Proc Roy Soc Med Lond* 1927 xv 133

McKenzie D Postoperative Facial Palsy is *Proc Roy Soc Med Lond* 1927 x 1137

Watson Williams E Glossopharyngeal Facial Anastomosis for Facial Palsy Following Successful Translabrynthine Drainage for Meni-  
ngitis *P Roy Soc Med Lond* 1927 xv 1137

Collidge L Hypoglossal Facial Anastomosis for Facial Palsy Following Mastoid Operations *Proc Roy Soc Med Lond* 1927 xv 135

Collidge L Descendens Noni Facial Anastomosis for Bell's Palsy *Pr Roy Soc Med Lond* 1927 x 1138

Gill Carey C Spinal Accessory Facial Anastomosis for Facial Palsy During Acute Destruction of the Labyrinth *Proc Roy Soc Med Lond* 1927 x 1135

Layton T B Facial Palsy Five Years After Injury *Proc Roy Soc Med Lond* 1927 38

BUZZARD discusses the difficulties in the treatment of lesions of the facial nerve due to the path of the nerve through the temporal bone and the impossibility of determining in certain cases whether the nerve has been completely divided crushed or merely exposed to the injurious effects of inflammations in adjacent tissues. He states that the difficulty is particularly great in cases of complete or nearly complete division which in the case of other nerves might call for local surgical intervention in the form of a resection and reunion operation that for anatomical reasons is precluded in the case of the facial nerve.

In general a facial palsy resulting from a lesion of the nerve in its course through the temporal bone does not call for operative interference and it is necessary to consider only what other measures will expedite the recovery of function.

These cases of facial palsy may be divided roughly into two main groups. In the first may be included all cases which after a lapse of three weeks from the onset of the palsy show even the slightest return of function in the facial muscles and in which the muscles do not show the reaction of degeneration to electrical tests. It is doubtful whether any treatment will hasten recovery in such cases but gentle rubbing of the facial muscles and the patient's own attempts to carry out facial movements can be trusted to prevent undue delay. Perfect recovery uncomplicated by contractures or spasmodic contractions may be expected.

The second group of cases comprises those in which the reaction of degeneration is present at the end of three weeks from the date of onset of the palsy. In the majority of such cases only time will show whether regeneration is possible no evidence

of regeneration will be forthcoming until after three or four months. In the interval we must be content to employ measures calculated to preserve the nutrition and contractility of the degenerated and atrophied muscles and to prevent the development of disfiguring contractures. To prevent the mouth from being drawn to the opposite side with consequent stretching of the muscles attached to its angle and upper border a simple apparatus has been designed. The nutrition and contractility of the paralyzed muscles may be preserved by massage and by compelling contraction by means of the make and break of the galvanic current.

As soon as any voluntary movement is possible re-educational exercises of the muscles before a mirror is the best method of restoring normal control over the features. Massage and electrical treatment are no longer necessary. At this stage post-paralytic contracture often develops characterized by some permanent shortening of certain muscles and by the patient's inability to discriminate his facial expressions. It is doubtful whether this complication can be avoided by any means and treatment by massage and electricity of no value when once the condition has developed. It is difficult to determine how long massage and galvanism should be continued in the hope of obtaining signs of nerve regeneration the decision depends upon special circumstances but generally speaking if there is no return of voluntary movement or of response to the faradic current at the end of six months it is useless to persevere with this method.

Buzzard states that his experience with operations for anastomosis of the facial nerve is too meagre to permit any expression of opinion regarding such measures.

McKENZIE reports the case of a 3-year-old boy upon whom the Schwartz operation was performed eighteen months ago. The day after the operation complete facial paralysis on the left side was noticed. Recovery is no progressing. An unusual feature of this case is the replacement of the normal closure of the left eyelid by spontaneous blinking given by a twitch at the angle of the mouth.

WATSON WILLIAMS reports the case of a woman 60 years of age who was admitted to the hospital in February 1906 with purulent meningitis and a dead labyrinth. At operation the entire labyrinth was found destroyed by a large cholesteatoma through which the facial nerve ran. The posterior fossa was drained through the internal auditory meatus and the facial nerve divided. The operation was followed by complete facial paralysis with reaction of degeneration. In October 1906 the proximal end of the glossopharyngeal nerve which was excluded to the stylopharyngeus was sutured end to end to the facial nerve which was divided at the stylomastoid foramen. Examination on December 1906 showed a decrease in the flaccidity of the cheek and nearly complete disappearance of the epiphora. There is now very definite improvement in the tone of the face with some capacity for

the tissue to prove that the nerve plexus itself was attacked

Interruption of the vasoconstrictor fibers in the vasomotor group of vascular disorders must be at the sympathetic ganglia either the lumbar ganglia for the legs or the stellate ganglion for the arms. This has been done by Adson and Kanavel in Raynaud's disease.

In the author's opinion the usefulness of peripheral sympathectomy lies between the extremely limited application of Sampson Handley and the broadly inclusive ideas of Leriche. Slesinger advises it in the following conditions: (1) impending and actual senile gangrene, (2) diabetic gangrene, (3) an arteriosclerotic gangrene, impending and actual

including the toxic type of endarteritis beginning with symptoms of angina cruris and progressing to gangrene, and (4) painful conditions of the extremities associated with circulatory disturbance and organic vascular changes.

Beneficial results are not expected in functional or vasomotor conditions such as Raynaud's disease, erythromelalgia, and the classical chronic type of Buerger's disease. The best results are obtained in the senile cases which may have an arteriosclerotic basis. Because of the constant relief of pain and in many cases the definite circulatory improvement, this operation is advised before the adoption of more severe measures in cases with present or impending gangrene.

2 000 R units were given. The patient was then able to return to his business that of a wine merchant and after two and a half years the cure was complete except that one abdominal reflex was slightly less than the other.

Case 3 was that of a boy of 18 years who complained of pain and weakness in both arms difficulty in walking muscular atrophy of the calves clonus and a peculiar gait. Laminectomy at the level of the second to fifth cervical vertebrae revealed an intramedullary tumor which appeared to be a glioma. Closure was done without any attempt at removal of the tumor. After the wound had healed the patient was given 11 000 R units in three regions two posterior and one anterior. Improvement was noted during the treatment. Ten days after the last exposure the patient was able to sit up in bed and feed himself. Four months later he was able to walk write and draw. Six months later 4 000 R units were given posteriorly and 3 500 R units anteriorly. At this time the cure was complete except for a slight tremor evidenced in the hand writing.

Case 4 was that of a man of 40 years with complete loss of voluntary motion in the legs which had developed gradually over a period of thirteen years. The legs were contracted in extension. The knee and Achilles jerks were exaggerated. Ankle clonus and a bilateral Babinski reflex were present. The abdominal and cremasteric reflexes were gone. Pain touch and temperature sensation were absent up to the breast region. There was complete loss of sphincter control. The cerebrospinal fluid was yellow and contained 8 lymphocytes. The Wassermann reaction was negative. Injections of lipiodol showed the tumor in the region between the last cervical and the fifth dorsal vertebra. Operation revealed in this area an angioma which could not be removed. Ligation at the two ends was done and the wound closed. Three series of roentgen treatments were given at intervals of four months. There was only very slight improvement. The contracture showed some diminution and the patient became able to sit up in bed.

The authors believe that combined X-ray and operative treatment gives better results than either X-ray or operative treatment alone. They emphasize the importance of the use of deep penetrating rays well filtered and the fact that true tumors of the cord are quite sensitive to the roentgen rays.

M. CHASE L. M. SO. M. D.

### PERIPHERAL NERVES

Buffalini M. Late Paralytic Symptoms in Adults with Spina Bifida Occulta (Sindromu periferic tard cu sindrom de letargie si spina bifida occulta). *Chirurgia* 1936 1: 96-107.

The author reports with roentgenograms three cases of spina bifida occulta with serious paralysis localized chiefly in the lower limbs. In two cases the paralysis was spastic and in one case it was

flaccid. The paralysis did not develop until the subjects had reached adult age. In the author's opinion it was due to the occult spina bifida. All other causes could be excluded. The spina bifida was in the lumbar column in Case 1 in the dorsal column in Case 2 and in the sacral region in Case 3.

In a fourth case that of a man of 44 years the symptoms were thought to be simulated. After an accident the patient complained of increasing weakness in the right leg which was accompanied by disturbances of sensation. None of the other physicians who examined the patient thought of spina bifida but the possible presence of this condition was suggested to the author by his experience in the three cases reported in this article. Roentgen examination showed occult spina bifida of the first sacral segment. Because of the very low position of the spina bifida the disturbances were doubtfully to trace on or compression of the root bundles by adhesions at the site of the rachischisis or to the retraction of the roots embedded in cicatricial tissue.

AUDREY G. MORGAN, M.D.

### SYMPATHETIC NERVES

Slesing E. G. Periaarterial Sympathectomy. *Gynäk. u. Geburtsh.* 1937 122: 5.

The operation of periaarterial sympathectomy consists in stripping the main artery of a limb of its perivascular nerve plexus. Though both afferent and efferent fibers are present in the perivascular plexus experiments by Langley have shown that each portion of a vessel is supplied by branches from the spinal nerves. The sympathetic fibers passing from the cord through the white rami sympathetic chain and gray rami to reach the spinal nerve of the same segment. Moss and Taylor proved experimentally that the vasoconstrictor fibers run mainly in the spinal nerves and not in the perivascular plexus.

In reviewing reported cases of perivascular sympathectomy the author finds that while many show little vascular improvement the relief of pain is a constant effect of the operation. Ligation or clamping of an artery is painful as is also the lodgment of an embolus and these facts are interpreted as indicating that fibers for painful sensation run in the perivascular plexus. This observation is supported by the relief afforded by operation. Any vascular improvement which takes place due to the abolishment of the vasoconstrictor spasm caused by the pain itself.

The technique of the operation is described. The artery usually chosen is the femoral artery in Scarpa's triangle the third part of the axillary artery.

Besides removal of the perivascular plexus other procedures are the Sampson Handley method of alcohol injection and the Doppler method of painting the vessel with a 7 per cent aqueous solution of isophenol or phenol. Removal of the plexus has the advantage of all while microscopic examination of

breast which were operated upon in the Netherlands 112 (61.9 per cent) showed metastases in the lymph glands. The corresponding incidence of metastases in England was 57.9 per cent. In 30.9 per cent of the cases of carcinoma of the breast in the Netherlands the primary tumor lay free in the breast; in 44 per cent it was adherent to the skin; and in 25.1 per cent there were adhesions between it and the deep fascia and muscles. The corresponding percentages in the English cases were 5.8, 33.7, and 13.5. It is therefore apparent that the patients treated in the Netherlands were generally in a somewhat worse condition at the time of operation than the English patients, and when we take into consideration the almost identical operability of the cases of both countries, the similar incidence of metastasis and the higher mortality in England, the conclusion seems warranted that carcinoma of the breast is more virulent in England than in the Netherlands. In the cases of carcinoma of the uterus which were operated upon in the Netherlands the tumor had already invaded the parametrium or the regional lymph glands in 40 per cent.

With regard to the interval between the time when the evidences of carcinoma were first noticed and the time at which the operation was performed, it was found that the cases in which this period was less than one half year were more common in England (48 of 386 cases in England and 168 of 450 cases in the Netherlands). According to this finding the mortality should be lower in England than in the Netherlands, whereas the opposite was the case.

These statistics suggest that carcinoma is more frequent in England than in the Netherlands.

In conclusion the author gives data regarding the influence of age, number of children, marriages, heredity, and the onset of menstruation and the menopause on the development of cancer of the uterus and breast. The figures for the two countries are similar. From a relatively small number of cases the conclusion is reached that in English women an attack of mastitis has no effect on the development of a carcinoma of the breast, whereas it does have an effect in women of the Netherlands. The data from both countries show that carcinoma is as frequent in women who had not nursed children as in the others. STUEBEL & (C)

### TRACHEA LUNGS AND PLEURA

Caslin, Pate, G. and Barcilla, L. M. Extra-pleural Thoracoplasty and Phrenicotomy in the Treatment of Pulmonary Tuberculosis (La thoracoplastie triple et la pleurotomie iliacu de la tuberculose pulmonaire). *Chirurgie* 1936, 96, 7.

The authors report six extrapleural thoracoplasties performed on four patients with no deaths. The operation was done as a last resort. Its results depend to a great extent on the patient's general condition and the postoperative care. It must be supplemented by medical and dietetic measures.

The article includes also the report of ten cases of phrenicotomy. In the authors' opinion the results of phrenicotomy as an independent operation are not so good as is generally stated in the literature. Even when complete paralysis of the diaphragm is brought about there is usually a vicarious action on the part of other respiratory muscles, chiefly costal, which decreases the effect to such an extent that it is doubtful whether sufficient compression of the base of the lungs can be brought about for the proliferation of connective tissue which is necessary for cure. Though the immediate results of phrenicotomy are encouraging especially in well-selected cases, the late results are less satisfactory. However, in the treatment of such a chronic disease as pulmonary tuberculosis, even moderately good results are worth while when they can be obtained without danger by such a slight operation.

ANDREY G. MOROZ, M.D.

### Johnson, F. E. Pyopneumothorax in Infants. A Report of Ten Cases Complicating Pneumonia. *Am. J. Dis. Child.* 1927, 40.

Pyopneumothorax in infants is often not recognized and occurs more frequently than the literature indicates. The symptom of air developing in the pleural cavity in infants are not characteristic. However, when an infant with pneumonia suddenly becomes cyanotic and dyspnoeic, the entrance of air in the pleural cavity should be considered.

Tympanic coin sound and succussion may be looked upon as cardinal signs. Roentgen examination with the patient in the sitting position and the blowing outward of the syringe plunger at the time of needling give conclusive evidence of pyopneumothorax.

The prognosis is grave. A favorable outcome depends greatly upon early diagnosis followed by adequate drainage, preferably by rib resection.

WILLIAM F. SHUCKLETON, M.D.

### Fraenkel, E. The Prognosis and Treatment of Pneumothorax Empyema with Special Reference to Thoracic Fistulae. (Beitrag zur Prognose und Beurteilung und zur Therapie des Pneumothorax empyematisosond. *Ber. klin. Wochenschr.* 1911, 21, 1737-1741.)

The author's opinions regarding the treatment of the various forms of pleural empyema are based upon his experiences with purely ambulatory cases of empyema among patients of the poorer classes in a large city. In accordance with the prevailing custom, Fraenkel applies the term "pneumothorax empyema" only to those pleural exudates which have progressed from a rapidly developing serous exudate with more or less severe disturbances of the general condition and period of very high fever and to cases which develop primarily as empyema with positive bacteriological findings. The latter particularly are apt to leave after subsidence of the acute symptoms a condition of extraordinary



Schädel H. The Treatment of Empyema (Z r  
Frag d r Empyembehandlung) Berl kl  
Ch 1926 cx vii 75

The author advises very great restraint in the performance of rib resection for the drainage of empyema cavities and in the performance of thoracoplasty in the treatment of residual empyema cavities or fistulae. He states that a rib resection is not a minor procedure as it may render a major intervention such as thoracoplasty necessary later. Rib resection destroys the continuity of half of the thorax and consequently disturbs its function. Siphon or suction drainage by whatever method can never restore the latter. It is not the empyema that makes the walls rigid but the loss of function resulting from the rib resection.

The best procedure for the patient is the simple and easiest intervention possible. If rib resection should be unavoidable it is not necessary to do a thoracoplasty immediately nor even when the fistula has been present for six months or longer. According to experience in the World War amyloid degeneration is not greatly to be feared.

The author bases his conclusions on five cases which he reports in detail.

In the first case that of a boy 6 years of age with a fistula of three months duration which followed the resection of two ribs and the opening of a tuberculous empyema by another surgeon the author obtained a permanent cure within eleven weeks by simply removing the drain. Three weeks before the closure of the fistula he was able only with difficulty to prevent the performance of a thoracoplasty which was recommended by another surgeon because of the fear of amyloid degeneration.

In the second case there was a right-sided hemothorax from a bomb-shell injury. The author prevented the rib resection which was recommended by a consulting surgeon after a febrile course of four weeks. Fourteen days later the fever receded and since then the course of the condition has been favorable.

Case 3 was that of a young woman with hemothorax due to a gunshot wound and suppuration following a rib resection. The patient came to the author for treatment three months after the operation. Schädel removed the drain. Three months later a thoracoplasty as recommended by a consulting surgeon because of the danger of amyloid degeneration but was refused. The patient recovered and ten days later is entirely free from symptoms.

Cases 4 and 5 were cases of metapneumonic empyema. In Case 4 the fever receded fourteen days after puncture and the withdrawal of 20 c cm of streptococcus pus. Today two and a half years later the patient is entirely free from symptoms. In Case 5 the fever receded on the day of puncture with the withdrawal of 15 c cm of pus.

In the discussion of this report Tietze (Breslau) warned against the usual meddlesome treatment given in empyema. He stated that the proper

treatment consists in rib resection the introduction of a wide tube in a hole in the pleura which should not be too large and the use of a suction apparatus. Special measures are necessary only in tuberculous and parapneumonic influenza empyema. In metapneumonic pneumococcus empyema operation may sometimes be rendered unnecessary by spontaneous resorption. GRAF (Z)

## HEART AND PERICARDIUM

Hesse E. The End Results of Suture of the Heart (Die D uersultate de Her aht) 1 hand d  
7 russ Cl Kong Leningrad 1926

The author reports upon the end results of suture of the heart in forty-eight cases treated at the Obukhov Hospital in Leningrad and 107 cases reported in the literature. Twelve of the patients treated at the Obukhov Hospital were subsequently examined—one of them after fifteen and a half years. Hesse draws the following conclusions:

1 Suture of the heart gives excellent results in 77.3 per cent of the cases; good results in 22.7 per cent and poor results in 1.7 per cent.

2 In 1 per cent of the cases there is inability to work in 18.4 per cent relative ability to work and in 80.1 per cent complete ability to work.

3 The sutured heart is often able to meet the most severe demands made upon it such as those of pneumonia, typhoid, relapsing fever, chronic alcoholism and heavy military service.

4 Ligation of the branches and the descending branch of the coronary artery in ten cases had no unfavorable effect upon the end result.

5 A suppurative pericarditis does not necessarily cause death even in this condition the end result may be good.

6 Among the most common complications of cardiac suture are adhesive pericarditis and mediastinopericarditis which occur in 27 per cent of the cases. The heart which is limited in its movement reacts eventually with hypertrophy. In two of the cases reviewed complete obliteration of the pericardium led ultimately to severe decompensation and death. In such cases precardiac thoracotomy is indicated. The flap resection of the ribs gives poor results because of subsequent adhesions. Widening of the wound canal in layers with complete resection of the ribs is preferable.

7 The prevention of intrapericardial adhesions and secondary infection requires complete closure of the pericardium and pleura by suture.

8 The injury of the heart is not rarely followed by myocarditis with dilatation. It is not impossible for relative insufficiency of the valves to develop on this basis.

9 Aneurysm formation at the site of the suture is not rare. It is due to anemic infarction.

10 It is roentgenologically demonstrable that the fibrous degeneration of the heart muscle may lead to a disturbance of the contractility of the cardiac wall.

sensitiveness the cause of which is to be sought in the specific tuberculous disease of the pleura. All of these forms may terminate favorably under purely conservative treatment.

In agreement with the majority of surgeons treating pneumothorax the author has abandoned the use of irrigations in cases of unmixed infected empyema as he has seen no definite benefit from it. With regard to the indications for puncture his views are essentially those commonly held. He warns particularly against the repetition of punctures in cases of tuberculosis of the pleura a condition characterized by marked lability after any form of interference.

Also with regard to the indications for thoracoplasty the author agrees with those who advocate conservative restraint. However after the development of a permanent pneumothorax and when restoration of the function of the lung is impossible or undesirable thoracoplasty should not be delayed.

On the basis of two of his own cases which he reports in detail the author submits a valuable contribution on the treatment of pneumothorax empyema with fistula. In one case with thin pus and bacilli two fistulae with little secretion were healed only after repeated evacuation of the exudate but a complete clinical cure and full capacity to work were obtained. In the other case a case of external fistula from pneumothorax empyema with an otherwise favorable prognosis failed to perform an immediate thoracoplasty proved to be incorrect. The empyema which had been sterile for a long time finally became infected through the fistula which secreted large amounts of pus and although an extrapleural thoracoplasty was finally performed and the patient withstood it well she died as the result of the necessary supplementary operations.

From these interesting parallel observations the author draws the following conclusions:

Fistulae which have only a slight secretion and are apparently narrow and do not run a straight course may exist for a long time without developing a mixed infection and therefore do not contraindicate the awaiting of a spontaneous recovery. In cases of fistulae which secrete constantly or in attacks and are therefore very patent the acoplasty should be done before the onset of mixed infection.

The author's own observations include 115 cases of pneumothorax followed since 1919 and 17 seven cases seen during the World War. In none of these cases did a permanent pneumothorax result. Rupture of a cavity occurred once. (Gar, Z)

Oelsel, Egel B.: The Treatment of Pleural Empyema. A Critical Contribution. (7. Die pleur. Empy. m. krit. ch. B. t. g.) Beitr. z. Ch. 66, 1919.

Simple thoracotomy supplemented by breathing exercises against resistance gives as good results in pleural empyema as any other method. Its dangers have been exaggerated. The citation of mortality statistics as an indication of the value of a method

of treatment is being abandoned. If a given technique insures thorough drainage of the pus in empyema the mortality associated with the use of that technique is of relatively little value as a criterion of the value of the method as empyema is often only a complication of some basic disease having no therapeutic relation to it. The evaluation of different methods of treatment must therefore be based on other grounds.

The demand made by empyema of any treatment is effective drainage with as little strain on the patient's general resistance as possible. This indication is met to a greater or lesser extent by various methods of treatment. The value of any technique is not only on its use to meet the indications in a given case but also on its wider application in the rush of active practice i.e. its ability to effect a prompt and good functional cure.

From this point of view thoracotomy is decidedly better than any other method for the treatment of empyema. It is not dependent upon the character of the pus. The criticism that its indications are limited because it greatly endangers the general resistance is not justified. The danger of respiratory and circulatory embarrassment from pneumothorax is not of great moment in empyema except in the very early cases as the displacement of the mediastinum and collapse of the lung are considerably hindered by the infiltrative inflammatory process which is present. The objection that by opening the pleural cavity and producing a pneumothorax the resistance of the pleura is greatly diminished (Noetzel) is not correct. The inflamed pleura is not possessed of much bactericidal or resorptive power and it loses what it has the moment an inflammatory process starts and the plastic exudate or granulation tissue is thrown out a reaction that has as its purpose the localizing of the infection to favor healing. This reaction is possible only if the product of inflammation are removed. A further advantage of simple thoracotomy over other methods of treatment lies in its simplicity.

In the Fischbach hospital a simple thoracotomy supplemented by breathing exercises against resistance is the method of choice. In sixty-four of twenty cases an open thoracotomy was done in four a thoracotomy and in one a thoracotomy. The average time required for cure was sixty days. A fistula developed in two cases. There were fifteen deaths a mortality of 23 per cent. The variations in the mortality are generally between 0 and 5 per cent. The time required for a cure in Koegels cases averaged thirty-four days and in Perthes cases eighty-three days. The cause of death in the fourteen fatal cases of the Fischbach hospital was sepsis in two, military tuberculosis in one, empyema on the second site in two and perforation of the appendix with subsequent peritonitis in one. In six cases the cause of death was not ascertained but was probably not related to the thoracotomy as the patient did not die until some time after the operation. (Gar, Z)



# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

**Trasler I O** A Large Diverticulum of the Bladder in the Sac of a Crural Hernia in a Woman (Gra de d ert c lo e scale n acco derna rurale di donna—re e on —gu rno e) 1 r h 11 d 1 19 7 11 355

Diverticulum of the bladder is more frequent in inguinal than in crural hernia and therefore more frequent in men than women. The author's case was that of a woman of 54 years who for about a year had had a swelling at the root of the right thigh. On examination a diagnosis of irreducible crural hernia was made. Operation was performed under local anesthesia induced with novocain. When the sac was opened it was found to contain a large intraperitoneal diverticulum of the bladder. As reduction was impossible the diverticulum was ligated and resected. The ligation was reinforced by catgut sutures in the resected margins. The stump was buried in the crural canal. The hernial sac was then ligated and resected and the stump buried. The pectineus was sutured to Poupart's ligament and a continuous suture of the subcutaneous tissue was done. The skin was sutured with hooks.

The diverticulum measured 32 sq. cm. and its neck would admit only a sound of moderate size. Histological examination showed that its walls had the same structure as normal bladder walls. It was therefore an intraperitoneal cystocele. In this type of cystocele the hernia is formed of a diverticulum implanted on the intraperitoneal part of the bladder. In the case reported the diverticulum was covered by peritoneum which formed the hernial sac.

The author regards his method of suture superior to the classical method. Recovery was uneventful and the patient is now in perfect health.

AUDREY G. M. ROGAN, M.D.

**Schoenbauer L** Experiments in the von Eiselsberg Clinic in the Treatment of Diffuse Peritonitis Due to Perforation by Irrigation with Pepsin Acidified with Hydrochloric Acid (D ert h rung d r Ehmke L ei be g b de Behandlung d r diffusen Peritonitis mit pepsin mit Sp 1 g mit salzsaurem Pepsin) Z f h f Ch 9 2 1 334

Of various solutions of hydrochloric acid used in the treatment of peritonitis a 3 per cent dilute solution was found to have the best bactericidal effect when pepsin solution of a strength corresponding to that of the normal gastric juice was added to it. For the first four and a half years the following solution has been used at the von Eiselsberg Clinic: 45 c.c.m. of dilute hydrochloric acid 1500 c.c.m. of sterile

distilled water and 1 gm. of pepsin solution of a digestive strength of 13000. In experiments on the abdominal cavity of the dog it was found that the pepsin prolongs the action of the hydrochloric acid.

In a case of postoperative diffuse fibrinopurulent peritonitis which developed suddenly (probably as the result of the giving way of the sutures) fifteen days after a resection of the stomach by the Billroth II method for duodenal ulcer and extirpation of the shrunken gall bladder the abdominal cavity was thoroughly irrigated with 3 liters of hydrochloric acid pepsin solution at a second laparotomy and then closed in three layers. After the healing of an abscess in the abdominal wall a cure resulted in six weeks.

In 117 cases of perforation peritonitis which were treated with the hydrochloric acid pepsin solution there were fifteen deaths, a mortality of 12.8 per cent whereas in 164 cases not so treated there were fifty-seven deaths, a mortality of 34.8 per cent. From the point of view of the etiology of the condition the results of treatment were as follows:

|                              | With treatment | Without treatment |
|------------------------------|----------------|-------------------|
|                              | Mortality      | Mortality         |
|                              | P              | P                 |
| Case                         | D              | D                 |
| th                           | th             | th                |
| Gastrointestinal perforation | 41             | 52                |
| Perforation of appendix      | 7              | 28                |
| Perforation of gallbladder   | 6              | 50                |
|                              | 3              | 6                 |
|                              | 0              | 0                 |
|                              | 8              | 7                 |
|                              | 26             | 9                 |
|                              | 0              | 0                 |

In twenty-nine cases of peritonitis following perforation of the appendix which came to operation within the first twenty-four hours and in which irrigation with hydrochloric acid pepsin solution was done and in ten cases of perforation of the appendix which are not included in the author's statistics and in which the exact time of the perforation was not definitely known there were no deaths. HIRSH (Z)

## GASTRO INTESTINAL TRACT

**Rasser J R F** The Pathogenesis of Chronic Gastrointestinal Ulcer and Some Remarks on the Question of a Rational Therapy (Die Pathogenese des chronischen Magengeschwüres und einige Bemerkungen zur Frage in der rationalen Therapie des peptischen Stills) 196

In discussing the fact that the living gastric mucosa is protected from self-digestion the author emphasizes particularly the physical character of the gastric secretion especially the hydrochloric acid secretion. He states that there is general agreement as to the material from which the hydrochloric

11 In one case a disturbance of the bundle of His was demonstrated. In time this condition is appeared.

In the discussion of this report BRAZIER stated that in one case of cardiac injury (the removal of a bullet from the wall of the heart with opening of the right ventricle and severe bleeding) flap resection of the rib was done successfully and the patient is now entirely free from symptoms. He therefore does not regard it as always necessary to do a complete resection.

HAGEN TORN reported that he prefers the flap resection to the complete resection as with the former the thoracic cage remains unchanged and the opening pneumothorax is changed into a closed one. However only the following method should be used: viz. resection of two ribs at a certain distance from the sternum by means of two horizontal incisions along the intercostal spaces the flaps of the flap being formed at the sternum. This method gives wide access to the heart and was employed successfully in several cases.

STREKOV proposed the complete resection twenty years ago because considerable time can be saved by it. The approach to the heart is wide enough for the immediate ligation of the wound and in mediastinopericarditis as Brauer has shown the work of the heart is immediately made easier. The same principle holds good also in cases of injury to the heart with subsequent mediastinopericarditis. The flap resection should not be absolutely abandoned entirely as it can be carried out successfully but the complete resection remains the method of choice.

DUNFORD called attention to the fact that the cases of Brazier and Hagen Torn were not cases of recent heart injury but cases of the removal of foreign bodies. He recommended the complete resection for recent injuries.

In conclusion HISS stated that the complete resection of the ribs has the great advantage that it can be carried out more quickly and gives wide access to the heart while after flap resection the wound cannot be widened subsequently in case it is too narrow.

Holst (Z)

infected roots were found. In the two other cases peritapical infection was discovered. In the first case operation revealed a small hæmorrhagic spot on the anterior surface of the duodenum and considerable stippling. In the second case (in which gastro-enterostomy had been performed previously) the ring of the stomach showed highly injected areas. In the third case the stomach and duodenum were normal but the appendix was chronically infected and was removed.

In all three cases cultures were made from the infected teeth and injected into animal. Within a very short time (twenty four hours in the first case) injection of submucous hæmorrhage with stippling was found in the duodenum of the animals.

In general if operation is performed shortly after the occurrence of the hæmorrhage, an acute lesion of the sort described is found in the duodenum. If operation is postponed, very little will be found to account for the bleeding, as in one of the cases reported. The author expresses the opinion that many of the cases of so-called appendiceal bleeding or gall bladder bleeding are probably attributable to acute lesions in the stomach or about or in the duodenum. When such cases have been recognized, treatment consisting in the eradication of infected foci and the administration of a bland diet of high-caloric content has given very encouraging results.

Leit V. Pyloromyotomy According to the Method of Payr in the Treatment of Pylorospasm  
(U b d e P y l o m y t o m i e h P y r b e i P l o r p m u ) Verh d d 7 s Ch K o t  
Lem grad 19 6

Under normal conditions the function of the pylorus is regulated by the intravegetative reflexes of the entire alimentary tract. By a pathological process in any portion of the intestinal canal these reflexes may be increased. There then occurs a spastic contraction of the pylorus whereby the secretory and motor function of the stomach is disturbed.

For the treatment of pylorospasm Madlener commends resection of the pyloric sphincter and Heileke and Kulicz recommended pyloroplasty. According to Payr the latter operation has the disadvantage of forming, as a result of the transverse suture, a sort of valve which may hinder the emptying of the stomach. Payr therefore recommends a longitudinal suture including only the serosa analogous to the Weber-Rammstedt operation on children.

The author performed the Payr pyloromyotomy in five of his cases. After the operation the gastric secretion was usually stronger and the hydrochloric acid secretion was increased. This condition persisted for from five or six months to one and a half years. In order to explain it a series of experiments were carried out. In these it was found that stimulation of the ileocecal region with the faradic current increased the peristalsis in the prepyloric portion of

the stomach and induced pylorospasm. When chloric acid barium was introduced into the ileum the effect was increased. The increased peristalsis is only slightly painful but the pylorospasm causes definite pain and a change in the gastric secretion. After pyloromyotomy an increase in the gastric secretion occurs but this soon diminishes and finally disappears entirely. No conclusions as to the final results of the Payr operation are drawn as the period of observation has been too short.

In the discussion of Levit's paper SAVKOV (Penza) reported the development of peptic ulcer of the jejunum in nine of 450 cases operated upon. Such a lesion is most apt to develop in persons with a neurotic make-up, a tendency toward spasm, increased acidity, and faulty pyloric function. Peptic ulcer of the jejunum has not developed in SAVKOV'S cases since he has sutured the mucosa with resorbable sutures and has prescribed a suitable post-operative diet.

KUSANOV (Woronez) reported that in 450 operations he found only one jejunal ulcer. Of importance in the prevention of such a lesion are careful and bloodless suturing, the Braun method of anastomosis, and a fluid diet during the first week after the operation.

MAJMBREZ (Leningrad) stated that in Hesse's clinic vicious circle developed in six of 254 cases in which a gastro-enterostomy was performed. In cases of acute vicious circle the operation should be as simple and as little time-consuming as possible, viz. entero-entero-anastomosis by the Braun method. In cases of chronic vicious circle it is better when the patient's strength allows it and the gastric ulcer is healed to close the gastro-enterostomy and re-establish normal conditions.

SPASOLUTOZKY (Saratov) reported that once during another operation he happened upon a peptic ulcer of the jejunum consecutive to gastro-enterostomy and from this fact he has come to the conclusion that the lesion is more common than is generally believed.

PETRASEWSKAJA (Leningrad) emphasized the importance of the neurogenic theory of peptic ulcer of the small intestine. He stated that this theory is supported by the fact that following an operation for ulcer of the pylorus the ulcer often occurs in a distant portion of the small intestine and also by the fact that it frequently occurs within from five to eight days after the operation. This is explained by severe irritation of the nerves and by reflex processes. Peptic ulcer of the jejunum may occur after any operation for gastric ulcer, not only gastro-enterostomy. In fact there appear to be persons who cannot be operated upon by any method as every type of operation on the stomach results in a peptic ulcer of the jejunum.

KRAUSE (Saratov) reported a case in which symptoms of vicious circle appeared on the ninth day after operation and a cure was obtained by repeated dilatation of the intestine with air. He called attention to the fact that when there is

acid of the gastric juice is produced but that the problem as to how the secretion of the acid takes place is still unsolved. He reviews the various theories. He proceeds from the observation of Bemmelen that neutral salts may be split into acid and base by the process of adsorption. He is of the opinion that by hydrolytic dissociation of sodium chloride sodium hydroxide is adsorbed by the protoplasm of the glandular cells and that in this way protection is obtained against the secreted hydrochloric acid and against the pepsin which act only in the presence of hydrochloric acid. He attempted to prove the correctness of this theory by experiments on animals.

Four strong healthy dogs were fed on rice cooked in distilled water and given distilled water to drink. The rice contained only traces of chlorides. During the administration of this diet the chloride content of the urine sank to very nearly zero but that of the blood remained almost constant at 0.6 per cent. After fourteen days no hydrochloric acid could be found in the gastric secretion. The dogs were then given 100 c cm of strongly active acid pepsin solution obtained from pigs. This was introduced into the fasting stomach through a tube.

The theory upon which the subsequent determinations were based was that when under the influence of a salt free diet the hydrochloric acid secretion of the stomach has ceased no protective sodium hydroxide will be left in the glandular cells giving rise to this secretion and the administered acid pepsin solution can carry on its pepsin activity unhindered.

The dogs were killed after twelve, eighteen, twenty, and twenty-four doses of the acid pepsin respectively given at intervals of from one to three days. In all definite changes in the stomach were found. In two there were numerous very hemorrhagic erosions throughout the gastric mucosa. In two others there were numerous small ulcers in the pyloric antrum and several larger and deeper ones in the duodenum (some going down to the serosa). In two dogs which had been given the same diet poor in salt but no pepsin the gastric mucosa showed no changes from the normal after a month. In two dogs given the same diet for fifty-nine and eighty-two days respectively there were many small hemorrhagic erosions of the gastric mucosa and in one of these dogs there were in addition two small ulcers of the pylorus.

In order to obviate the objection that the changes might have been due to a deficiency of vitamins dogs were given a salt poor diet with the addition of vitamins for periods ranging from ninety-one to one hundred and thirty-seven days. In none of these animals were pathological changes found in the stomach or duodenum.

In another series of experiments dogs fed on a salt free diet with vitamins were given acid pepsin in addition. All of these animals showed pathological changes—small ulcers in the antrum and large ulcers in the duodenum.

In a dog given an ordinary diet of mixed food and 100 c cm daily of the acid pepsin solution for fifty-nine days the stomach was normal.

The microscopic findings are reported only briefly. From the three findings mentioned it appears that first a gastritis developed and that the ulcer formation was definitely of an inflammatory nature. It is emphasized that the described changes in the stomach occurred only in the antrum and never in the fundus. The author assumes that since the stomach of the dog fed a salt free diet no longer secretes hydrochloric acid no sodium hydroxide is retained in the mucosal cells to protect them against the administered acid pepsin and as a result these cells are acted upon by the pepsin. The chief essential in ulcer formation according to Rässers is a lack of protective sodium hydroxide in an area with circulatory disturbances due to such conditions as embolism, arteriosclerosis and spasm.

For the surgical treatment of gastric and duodenal ulcer Rässers favors jejunostomy based on the indications given by Laméris. KONJZKY (2)

Rive & A. B. Hemorrhagic Focal Gastrodenitis Lesions. Preliminary Report of Three Cases. *Arch. Med.* 1927, 564.

Rivers presents a preliminary report of the investigation of a series of cases of hemorrhage from the gastrointestinal tract. He is concerned particularly with those cases surprisingly large in number in which the hemorrhage can not be attributed to definite ulceration. In many of these the hemorrhage may be due to varices, hepatitis, hepatic cirrhosis, splenic disease or blood dyscrasia. For lack of other evidence the hemorrhage has been attributed sometimes to associated disease of the gall bladder or appendix. In some of the latter cases as well as in others in which no such abnormality could be found the surgeon discovered some unusual condition about the pylorus or in the duodenum manifested by adhesions about the pylorus or oedema or swelling of the duodenum. The history was characteristic of peptic ulcer but the bacteriological appearance did not bear out such a diagnosis. It was largely the hemorrhage which made exploration necessary.

In many of these cases a history of attacks of tonsillitis, adenitis or acute arthritis just prior to the onset of bleeding suggested a relationship of the condition to focal infection. The author reports three cases of this nature in which bacteriological study including injection into animals was carried out.

In all three cases the urgent complaint was hemorrhage from the stomach. Symptoms consisted of gastric distress and in two of the cases pain and vomiting had persisted for many years. In the second case the hemorrhage and vomiting had commenced some months after a gastroenterostomy. In every case there was a history of tonsillitis and in one instance the tonsils had been excised. In the first case the mouth was edentulous but

of importance following operation. When a peptic ulcer of the jejunum develops a repetition of the gastro enterostomy when the original gastric ulcer has not yet healed is without justification. The manner of suturing and the type of suture material are of no great importance. To prevent perforation of the peptic ulcer of the jejunum into the transverse colon the opening of the mesocolon in the performance of gastro enterostomy should be made as far from the colon as close to the spine as possible.

MUSKATOV (Leningrad) stated that under normal conditions the negative pressure in the stomach favors gastric peritonsitis and that in his opinion Krause ascribes to this negative pressure too much importance in the etiology of vicious circle not all cases can be explained by this theory.

LEVIT (Irkutsk) called attention to the fact that in his work on pyloroplasty Payr cited a number of Russian surgeons who have discussed this operation. He emphasized that in articles on peptic ulcer of the jejunum the name of the surgeon who performed the original gastro enterostomy should be given as patients with this condition are prone to change surgeons and this information is necessary for a correct estimation of the incidence of peptic ulcer of the jejunum. WINOGRADOV (L)

Dwight L. B. Benign Hypertrophy of the Stomach and Linitis Plastica. S & G 1971 xv 693

Diffuse induration or hypertrophy may be general or confined to a portion of the stomach. When general it may be accompanied by a marked diminution in the size of the organ and is known as leather bottle stomach or linitis plastica. This condition is seen most often in the pyloric portion of the stomach where carcinoma is so frequently found. The symptoms correspond to those of carcinoma or a durated peptic ulcer. The roentgenogram upon which we have come to depend so largely for the diagnosis of gastric diseases does not seem able to differentiate the various pathological changes which may be found in this condition. Dwight reports the cases summarized as follows:

1. First, the term linitis plastica was applied to all the conditions of hypertrophy and induration of the stomach which were not obviously malignant.

2. To lay it (plastic) to a probable malignant group of cases with a definite morphological interpretation of which is indubitable. It separates the cases of silent malignancy from those that are clearly benign.

3. The benign group can be subdivided into hypertrophic pyloric stenosis, fibromatosis, cirrhosis, inflammation, and syphilis etc.

4. The cases reported in this article are probably examples of chronic inflammation.

5. All of the benign conditions may resemble linitis plastica to a degree that a careful microscopic examination is necessary to differentiate them.

6. When the lesion is confined to the pyloric half of the stomach the X-ray picture closely resembles that of carcinoma of the pylorus and operation is likely to be undertaken on the basis of that diagnosis.

7. In this condition it is impossible to tell at the time of operation whether the process is benign or malignant.

8. Under such circumstances partial gastrectomy with a jejunal anastomosis is the operation of choice. MORRIS H. KAHN, M.D.

Gerster J. C. A. Phlegmonous Gastritis. Ann. S & G 1934 668

Phlegmonous gastritis is a rare infection of the stomach wall characterized by seropurulent or fibrinopurulent inflammation localized chiefly in the submucosa but more or less involving other layers. It may occur as a phlegmon, an abscess or a combination of both. The phlegmon may be diffuse or circumscribed. Streptococci are the organisms most frequently found (70 per cent of the cases).

The condition has a sudden onset with profound prostration, high fever, chills, intense epigastric pain and tenderness, repeated severe vomiting, more or less local rigidity, absence of pain when the patient sits up, and a high white blood cell count. It is usually mistaken for acute perforated gastric ulcer, acute pancreatitis, or acute cholecystitis.

Gerster reports five case histories with autopsy findings and draws the following conclusions:

1. Phlegmonous gastritis is a very rare condition the varieties and pathogenesis of which are becoming more clearly recognized as the material accumulates.

2. It may be assumed that there are (a) mild cases in which recovery may occur before the nature of the condition is recognized, (b) fulminant types ending in death within a few hours, (c) acute cases running their course in two or three weeks usually with a fatal outcome but occasionally undergoing spontaneous recovery with a more or less protracted convalescence and (d) subacute chronic form which may simulate neoplasms, the less extensive types of which may lead to cicatricial changes in the gastric wall depending on their extent and location.

3. Cores reported following palliative surgery such as local drainage or gastro-enterostomy may properly be considered spontaneous recoveries.

4. Resection is the operation of choice when feasible. It has a higher mortality in recent cases than in those in which the condition has been present for some time.

Postoperative phlegmonous gastritis is probably of more frequent occurrence than is realized. Hence it is advisable to make microscopical examination of tissues from the region of anastomoses in all cases coming to autopsy.

MORRIS H. KAHN, M.D.

gastric paresis emptying of the stomach may be rendered impossible by the negative pressure in the esophagium

LESTER (Keyer) stated that he had performed pyloroplasty in the manner recommended by Payr as early as 1920. His article describing it appeared in the *Progress Medical* three months before the publication of the article by Payr.

HESSE (Leningrad) reported several of his cases of carcinoma of the stomach. In the first two cases total resection of the stomach was done. Both of the patients died one from operative shock and the other—in whom the esophagus was united to the duodenum—of pneumonia. Autopsy in the latter case disclosed no fault in the operative field. Of five cases in which subtotal resection of the stomach was done two were fatal. Of three patients subjected to resection of the stomach and transverse colon one died of peritonitis. At the ends of the colon could not be united they were closed and an anastomosis was made between the ascending colon and the sigmoid flexure. In two cases in which the stomach and a part of the pancreas were resected there was one death. In four cases in which the stomach and a part of the liver were resected there was no mortality. Hesse is of the opinion that the technique has now been perfected to such a degree that the limits of operability may be widened.

BRAZEV (Moscow) claimed that the basis of peptic ulcer of the jejunum is the method of operation gastro-enterostomy. Since 1909 he has been performing the submucous pyloroplasty in cases of ulcer at a distance from the pylorus and resection for bleeding ulcers of the pylorus suggesting cancer. He has reserved gastro-enterostomy for cases of pyloric ulcer in which resection rendered impossible the patient's eagerness. He also has been performing the submucous pyloroplasty since 1920 and in that year his work was cited by Payr.

GREKOV (Leningrad) stated that in his opinion gastric ulcer is a disease of constitutional nature which is associated with disturbances of the internal secretions whereby spasms especially of the sphincteric muscles are brought about. The trophic nerves are also injured. If a portion of the stomach wall remains after operation the tendency to a recurrence persists. Therefore either a total gastric resection must be done or an operation which is merely palliative must be as simple and safe as possible. Grekov has recently been performing pyloroplasty instead of gastro-enterostomy with increasing frequency. From the point of view of the technique he believes the division and resection of a part of the sphincter is desirable. The reflex relation between the ileocecal valve and the pylorus may be regarded as a clinically established fact and has recently been proved by the experimental studies of Bekrenev in Levits clinic. Grekov has not given up gastro-enterostomy entirely, he still performs it often and sometimes in combination with ligature of the pylorus. The tendency to do a

circular resection of gastric ulcers to prevent the occurrence of peptic ulcer of the jejunum he regards as objectionable as the mortality of this operation is greater than that of the operative treatment of peptic ulcer of the jejunum.

SEIBENTHAAR (Kauai) emphasized that the limits of operative procedure on the stomach must be widened especially in cases of malignant cancer. He reported three cases of resection of the stomach and transverse colon, one case of resection of the stomach and a portion of the small intestine and one case of resection of the anastomosis of a posterior gastro-enterotomy with closure of the stomach and intestine and the immediate performance of an anterior gastro-enterostomy by the method of Braun. All of the patients understood the operation well and may now be regarded as cured.

SOKOLOV (Leningrad) stated that in his opinion the pyloroplasty of Payr cannot give permanent results as the cicatricial stenosis resulting from the longitudinal suture of the serosa will increase. He believes that if the sphincter should not be united Payr assumes it will it may lead to diverticulum formation. He prefers the Heinecke Mikulicz pyloroplasty and believes that in cases of ulcer at a distance from the pylorus cases with the ulcer syndrome but without ulcer and cases of duodenal ulcer it is the method of choice. In cases of callous pyloric ulcer which constricts the lumen of the pylorus he performs gastro-enterostomy according to the method of Bier.

EBERLE (Bologna) claimed that pyloroplasty is indicated in every form of pylorospasm. Its great advantage is that it requires little time. In cases of marked gastroparesis pyloroplasty is contraindicated.

PETROV (Leningrad) basing his remarks on autopsy material emphasized the great value of gastro-enterostomy and stated that the performance of resection in every case of gastric ulcer is wrong. Resection he believes should be reserved for cases with complications. In order to obtain the smoothest possible healing and as normal functioning of the anastomosis he employs the one row suture method of Bier. The Heinecke Mikulicz pyloroplasty in its original form he regards as unsuitable for cases of cicatricially constricted pylorus. In cases of pylorospasm in which the pylorus anatomically normal and especially in those in which the ulcer is situated high up in the cardia it is a generally appropriate procedure.

SATSKY (Leningrad) reported that in his clinical vicious circle observed in five of 350 cases in which gastro-enterostomy was performed. It appeared between the eighth and tenth days after the operation. In two cases a second laparotomy was done. In the others the treatment consisted in gastric lavage and enemata. All of the patients recovered.

SOKOLOV (Leningrad) stated that the frequency of gastric ulcer depends upon the nature of the food and that therefore a careful dietetic treatment

cusses the ultimate effect of partial gastrectomy on the physiology of the stomach

A trial of medical treatment is advocated for every case of duodenal ulcer which has not progressed to perforation and is not associated with pyloric obstruction. Such treatment makes the patient a better surgical risk. In chronic gastric ulcer surgery is preferable. The procedure of choice is excision of the ulcer with or without gastroenterostomy or partial gastrectomy.

The importance of postoperative medical treatment is emphasized C O HERMANN MD

Cleland J B. Carcinoma of the Stomach Gastric Ulcers and Duodenal Ulcers in 1 000 Consecutive Autopsies at the Adelaide Hospital *Med J A* 1927 74

Of 1 000 autopsies carcinoma of the stomach was found in thirty six (3.6 per cent). Thirty of the subjects were males whose average age was 57.5 years. The youngest was 18 years of age and the oldest 75 years. Six of the subjects were females with an average age of 57.2 years.

In Australia carcinoma of the stomach is rare before the fortieth year of age and most common between the ages of 60 and 70 years. The statistics of Stewart based on a series of 7 900 autopsies are almost identical.

In twelve (42.8 per cent) of the cases reviewed the site of origin of the lesion was the lesser curvature in eleven (36.3 per cent) the pylorus usually the posterior aspect and in four (14 per cent) the cardiac end of the stomach. These figures differ from those of Stewart possibly because of differences of classification.

In twenty six of the thirty six cases secondary growths appeared elsewhere. In twelve nodules were present in the liver. In fifteen the adjacent glands were involved and in two the supraclavicular gland. In seven cases there were metastases to the peritoneum and omentum. In two the spleen was involved in one the pleura and in four the lungs. In two cases subcutaneous nodules were found.

Several cases presenting unusual features are reported. In only a very few instances were there any indications that the malignant growth had supervened on a chronic ulcer. In only two instances were there associated tuberculous lesions of moment. The complications found at autopsy are enumerated. In two bodies the malignant growth was discovered accidentally. Several of the bodies presented other lesions in no way related to the malignant growth.

Eighteen cases of ulcer of the stomach are reviewed. Thirteen of the patients were males. In several cases the discovery of the ulcer was quite unexpected.

Healed or unhealed duodenal ulcers were found in 1 per cent of the cases. Nine of the eleven patients with duodenal ulcer were males. The average age of both males and females was 56.4 years.

C O HERMANN MD

Langemann. The Operative Findings in Patients Preoperatively Subjected to Gastroenterostomy (Operativonbefunde an Gastroenterostomierten) *Zentralbl Ch* 1926 1 2999

This report is based on the cases of nineteen patients treated by gastroenterostomy who were subsequently obliged to undergo a second laparotomy. In five cases the second operation was indicated by disturbances of nutrition with regurgitation of bile in five by recurrence of the original ulcer and in nine by peptic ulcer.

Cures following gastroenterostomy—with the exception of cases of pyloric stenosis—are much more rare than is commonly believed. When the ulcer is situated at a distance from the pylorus gastroenterostomy is not to be recommended. The mortality due to consequent peptic ulcer should be included in the mortality statistics of gastroenterostomy. In the von Eiselsberg clinic the mortality of peptic ulcer resection is 25 per cent. Gastroenterostomy is definitely contra-indicated in cases in which neither a narrowing of the pylorus nor an ulcer can be found.

In the discussion of this report PELS LEANDER stated that in his opinion gastroenterostomy need not be entirely abandoned. He recommended an antecolic posterior gastroenterostomy with a long loop and without an anastomosis according to the method of Braun. This functions perfectly.

SCHWARTZ reported that a systematic re-examination of patients subjected to gastroenterostomy very frequently reveals postoperative complaints and that while laparotomy may show a cure of the original ulcer it just as frequently shows the persistence or even progress of the lesion. In eight cases of postoperative vicious circle—in seven of which the condition followed an anterior gastroenterostomy and in one a posterior gastroenterostomy—an anastomosis according to the method of Braun was performed with good results. Schwarz reported a case in which a cancer with numerous peritoneal and glandular metastases developed at the site of an anterior gastroenterostomy performed seven years previously for an ulcer at the pylorus. In this case improvement was obtained by anastomosis according to the method of Braun. Of 200 patients treated by gastroenterostomy at the Rostock clinic and discharged as cured thirteen died later of carcinoma of the stomach and seventeen developed peptic ulcers. In ten of the seventeen cases of peptic ulcer an anterior gastroenterostomy had been done and in seven a posterior gastroenterostomy. Schwarz concludes from these findings that gastroenterostomy is not only a superfluous but also a dangerous operation in ulcer of the stomach.

DEHLECKER attributed the unfavorable results of gastroenterostomy partly to a faulty technique (too long a loop in posterior gastroenterostomy). He believes that if resection is impossible in a case of ulcer a gastroduodenostomy with section of the pylorus is preferable to gastroenterostomy.

Melchior F. Surgical Tuberculosis of the Stomach (Zu den letzten hundert Jahren in der Chirurgie) Berlin 1926

In an article of fifty pages Melchior gives a review of the literature of surgical tuberculosis of the stomach and reports six cases which were of great interest in Kuettners clinic during a period of ten years. Four of the patients treated in Kuettners clinic were men and two were otherwise free from tuberculosis. In one case an exploratory laparotomy was performed in the patient died soon afterward. One patient treated by gastroenterostomy lived two years and nine months later of pulmonary tuberculosis. Of four patients treated by resection two died soon after the operation one is still alive after three years and the other is still alive after ten years.

According to recent findings gastric tuberculosis is more of a rarity than was formerly supposed. Certain forms of gastric tuberculosis are not surgical viz involvement of the stomach in generalization of the stomach with multiple ulcers of the gastric mucosa occurring in the terminal stages of pulmonary tuberculosis is an unusual form of gastric tuberculosis. Surgical tuberculosis of the stomach occurs as a mass like circumscribed tumor proliferation associated with certain definite clinical signs usually a palpable stenosing pyloric tumor. In some cases the tumor undergoes fibrous changes with the formation of a cicatrix. In a few it goes on to caseation and abscess formation. Less frequently the circumscribed gastric tuberculosis forms large deeply penetrating ulcers with a marked fibrous reaction in the surrounding tissues which closely resemble cancerous ulcers. As a rule the ulcers are situated in the region of the pylorus but they may occur also on either the lesser or greater curvature.

Pathologically gastric tuberculosis is a manifestation of the third stage of tuberculosis even though it may appear to be the primary condition. It may develop from exogenous inoculation or may be blood or lymph borne. Tuberculosis of neighboring organs may affect the stomach secondarily either by rupturing into it or spreading by continuity. Simple pressure from tuberculous glands may lead to gastric symptoms especially if the pressure occurs in the region of the pylorus.

The author mentions not specific gastric tuberculosis and states that he doubts the occurrence of such a condition. He discusses also the relation of gastric tuberculosis to linitis plastica, fibrous pyloric stenosis and polyplasia linitis.

Surgical tuberculosis of the stomach occurs as a rule in adults but has been found also in children 12, 13, 17 and 18 years of age. The ratio of women to men affected is 3:2. As the condition occurs most often in the pyloric region the clinical picture is dominated by symptoms of gastric obstruction. These symptoms, the presence of a palpable tumor and the x-ray findings may lead to a diagnosis of

cancer of the stomach. Hourglass stomach due to tuberculous is very rare. Diarrhea occurs frequently but severe bleeding is unusual. Rupture seldom occurs into either the free peritoneal cavity or into neighboring organs.

The disease is serious in itself as well as because of the frequently associated involvement of the lungs or the rest of the abdominal cavity. The diagnosis is seldom made. The condition should be borne in mind in the treatment of gastric symptoms in the cases of patients suspected or known to have tuberculosis in other organs. As a rule it is impossible to prove the diagnosis even at operation. It is often impossible to state definitely that the lesion is tuberculous. The presence of caseated regional lymph glands and a smooth regular and not very dense tumor suggests tuberculosis.

The presence of pulmonary tuberculosis is in itself not a contra-indication to operative treatment on the contrary the unfavorable influence that the gastric condition may have upon the pulmonary condition may constitute an urgent indication for surgery provided the process in the lungs has not progressed too far. Most of the patients treated by gastroenterostomy succumbed after a short time to progress of the pulmonary tuberculosis. The spread of the process throughout the peritoneal cavity. With many other surgeons Melchior regards resection as the method of choice even though because of the nature of the process and the generally poor prognosis of visceral tuberculosis the results cannot always be good. Besides local operative measures the treatment must include general treatment for tuberculosis and treatment of any other tuberculous foci that may be found. (J.A. 15 (2))

Willis A. M. A Discussion of the Treatment of Peptic Ulcer of the Stomach and Duodenum. *Annals of Surgery* 1926 97: 1-94

The author discusses the methods used in the diagnosis of ulcers of the stomach and duodenum, the frequency of the lesions and their treatment. The treatment may be medical or surgical. Surgical treatment may be radical or conservative. Sherrin and Balfour regard gastroenterostomy as the operation of choice for chronic duodenal ulcer. Balfour reports a cure in 88 per cent a mortality of 2 per cent and the development of gastric jejunal ulcer in 3.5 per cent of 1000 cases. The statistics of Hagard and Floe agree essentially with those of Sherrin and Balfour. On the other hand Schmieden reports failure in 50 per cent of his cases. Clairmont reports a cure in 50 per cent. Sauerbruch good results in 36 per cent. Lewis has a cure in less than 50 per cent and Forsyth a relapse in 36 per cent. This marked difference is probably to be explained by differences in the definition of cure rather than by difference in surgical skill.

Actually all surgeons who are dissatisfied with gastroenterostomy favor a more radical measure such as subtotal gastrectomy. The author dis-



origin. Other theories attribute them to crushing trauma, traction, localized weakness of the wall, increased pressure from partial obstruction below, and localized redundancy of the wall resulting from cicatricial contraction due to ulcer. The diverticula occur most frequently in the sixth decade of life. They may be single or multiple and the cases may be simple or complicated.

In a large percentage of cases requiring surgery the diverticula are associated with duodenal ulcer and situated in the first portion of the duodenum. Most of those not associated with ulcer are of the perivaterian type and apt to project into the pancreas which renders them difficult to detect even at operation.

X-ray and autopsy reports indicate that diverticula of the duodenum are common but rarely produce symptoms unless they are inflamed or cannot empty readily. X-ray examination is the only reliable means of diagnosis.

In the few cases in which simple diverticula have been noted to cause symptoms the clinical picture has suggested ulcer or cholecystitis. In one case with acute inflammation a diagnosis of acute appendicitis was made. The only symptom of value is local pain produced by increase in intra-abdominal pressure by posture, muscular contraction, or direct pressure.

In simple cases without inflammatory involvement surgery is rarely necessary but in acute diverticulitis resection is usually indicated. In cases complicated by adjacent inflammatory changes such as ulcer or cholecystitis these other conditions must be taken care of and the diverticulum excised or not according to whether it seems to be playing a part in the production of the symptom. In most cases with inflammation and complications which have been treated by surgical excision and the procedures indicated for adjacent pathological changes the symptom have been relieved.

HURTO CLARK, JR., M.D.

Borlotti C. Duodenojejunostomy and Mobilization of the Duodenum from the Left by the Clamont Method (La duodenostomie mobile). *Ann. Chir. G.* 1914; 4: 114-49.

The technique of the duodenal mobilization described by Borlotti is as follows:

The transverse colon is pulled upward and the proximal loop of the jejunum to the left. This stretches the duodenojejunal and duodenohepatic folds. The duodenojejunal fold is incised near its attachment to the intestine. The duodenohepatic fold is incised and the incision carried down anteriorly just above the duodenum. This fold of peritoneum can then be pushed to one side so that the ascending part of the duodenum can be freed from the retroperitoneal connective tissue with moist sponge and pushed upward.

In this manner the aorta and inferior vena cava are exposed. The mesenteric artery can be seen

through the parietal peritoneum. The line of incision in the latter should lie to the right of the vessel. When this incision is made the ascending part of the duodenum can be mobilized to the root of the mesentery so that the posterior wall of the inferior horizontal tract can be seen and also the inferior duodenal flexure from behind. The tract of intestine mobilized in this way is placed sagittally so that its upper end corresponds to the duodenojejunal flexure. By means of the mobilization a rotation of the loop of intestine for more than 90 degrees can be accomplished from the posterior wall of the abdomen toward the left so that its lower pole lies at the lower duodenal flexure.

The chief indications for the mobilization are (1) secondary resection for peptic ulcer after gastroenterostomy, (2) secondary operations for vicious circle or after gastroenterostomy.

In peptic ulcer the shortness of the afferent loop of the gastroenterostomy and the surrounding inflammatory changes make terminolateral union of the stump of the duodenum with a loop of the jejunum so difficult that the anastomosis is not secure enough. By mobilizing the ascending part of the duodenum by Clamont's method much more radical resection can be performed into healthy tissue and a laterolateral enterostomy can be effected. In cases in which Braun's enteroanastomosis has been performed it is difficult at a second operation to establish a new communication between the afferent and efferent loops. Moreover as the size of the stomach is decreased considerably after the resection the remaining loop of jejunum may be too short to form a new gastroenterostomy. By mobilizing the duodenum from the left however this loop can be prolonged and the new gastroenterostomy can be effected without tension to a higher tract of intestine which is important in the late results as this high loop of intestine has a greater tolerance for the acid gastric juice.

In vicious circle after posterior retrocolic gastroenterostomy Braun's enteroanastomosis cannot be performed because the afferent loop is too short; therefore if a second operation is necessary it must be an anterior antecolic gastroenterostomy or a von Eiselsberg jejunostomy. In cases with marked inanition and prolonged vomiting these operations rarely give satisfactory results. By mobilization of the ascending part of the duodenum and a laterolateral duodenojejunostomy the vicious circle can be overcome and reflux of bile prevented.

More than twenty cases treated by the operation described are reported ARDAY (MORRIS) M.D.

Sweet and Robertson. Congenital Atresia of the Jejunum. *Operation Recovery*. *N. Z. J. Med.* 1917; 1: 18.

The authors cite the studies of Davis and Pointer who collected 392 cases of congenital occlusion of the intestines between the pylorus and the rectum. One hundred and ninety-four were cases of single atresia in the duodenum or jejunum and sixty

**FRIDMAN** reports that in all cases of ulcer he has found a more or less severe gastritis. This is the basic condition the ulcer being merely a by-product. In a case of *Borl gastritis* the result of a gastro-enterostomy cicatrix is an ulcer. Unless the entire portion of the stomach affected with gastritis is removed the ulcer will recur even following a gastric resection. According to Anschutz the results of gastro-enterostomy in cases of ulcer at a distance from the pylorus are very poor. In the absence of positive findings the effect of the operation is unreliable.

MAX I (7)

**Scholefield B. C.** Acute Intestinal Obstruction. Experimental Evidence of the Absorption of a Toxin from Obstructed Bowel with a Critical Review of Various Methods of Treatment. *Can Hosp R p Lond* 1927 1 1 160

Death in acute intestinal obstruction has been attributed to (1) invasion of the body by bacteria from the damaged bowel (2) reflex nervous action the obstructed bowel being the source of impulses which disturb the general system and (3) chemical poisons absorbed from the bowel. Most investigators now seem to agree that the symptoms of obstruction are due to the last cause.

In a series of experiments Scholefield attempted to obtain evidence of the presence of a toxic substance in the portal blood of animals with obstruction. His method consisted in injecting mice intraperitoneally with portal blood or serum obtained from dogs with an artificial obstruction of the ileum. Systemic blood flow from normal dogs was used as a control. Systemic blood obtained from animals with obstruction was found to be without effect. This suggests that the blood takes some part in the removal of the toxin from the circulation.

The facts favoring the absorption of the toxic product into the portal circulation seem to be becoming increased intra-intestinal pressure in the lumen of the upper bowel and the presence of bacteria, especially *Bacillus welchii*.

The experimental findings suggest that therapeutic measures should be directed along the following line: (1) early and adequate relief of intra-intestinal pressure (2) resection when practical of any length of bowel showing damage (3) drainage of the jejunum to prevent absorption of its contents (4) the administration of saline solution in large amounts to combat toxemia and (5) the use of anti-gastric serum which possibly has a specific immunizing action in cases of obstruction.

JOHN H. CARRICK, M.D.

**Romeo M.** Grafts of Fixed Aponeurosis in Loss of Substance of the Wall of the Intestine. *Ann Surg* 1927 85 1 100. (Abstracted in *Int Surg* 1927 7 7 64)

For grafts of fixed tissue the tissue are first treated with various fixatives which can be absorbed readily before the graft is used. The author gives protocol of ten experiments performed on dogs.

He concludes that for temporary occlusion of a hole in the wall of the small intestine fixed fascia is safer and more effective than a flap of fresh fascia as it causes less reaction and inflammation in the host. A pedunculated flap of the greater omentum placed over the fascia graft will protect it if some of the sutures fail to hold.

Most of the grafted aponeurosis is eliminated through the intestine in a period ranging from ten to fifteen days but some parts of it remain embedded between the tunics of the small intestine and in the course of time become penetrated by young connective tissue cells which slowly revivify the stroma. The presence of these segments of fixed aponeurosis facilitates the process of regeneration of the wall of the intestine forming an inert scaffold for the young cells and assuring greater solidity of the wall of the grafted part of the intestine. The layers of the intestinal wall the fixed aponeurosis and the pedunculated flap of omentum all take part in the reconstruction bringing about a gradual and progressive reformation of young connective tissue which fills the defect.

The regeneration of the intestinal mucous membrane begins about the twentieth day and advances from the periphery toward the center in eighty days the mucosa is re-created to the extent of being formed by a single layer of cells but there are no glands. In the author's experiments the muscle tissue of the muscularis mucosae and the circular or longitudinal tunics of the intestine did not regenerate. After one hundred ten days the grafted tract of intestine showed a moderate degree of stenosis but not enough to interfere with the good results of the operation.

AUDREY C. MORRIS, M.D.

**Vespignani A.** Malformation of the Upper Flexure of the Duodenum in Cholecystitis. *La def m m d m och upore d d de il lecti* 1 1 ch tal d h 9 30

A great majority of the cases of peridontitis are caused by duodenal ulcer or cholecystitis but the peridontitis from these causes generally is not affected by the upper flexure of the peridontitis. In cholecystitis affects the upper flexure very frequently this being the site of predilection for the changes caused by the condition.

In peridontitis from cholecystitis the upper flexure is pulled upward and deviated greatly to the right is very obtuse and is replaced by a large regular curve made up of the first and second portions of the duodenum.

The article includes several roentgenograms.

ALFRED MORRIS, M.D.

**Herbst W. P.** Diverticula of the Duodenum. *Jl of d d* 9 7 364

This article is based on a study of 361 cases from the literature including 182 autopsy reports 136 X-ray reports and 20 surgical cases. According to one theory these diverticula are of congenital

administration of paraffin oil twice a day a large soap-suds enema once a week and occasional doses of bismuth. Operative treatment is indicated only in severe cases. In severe cases with obstruction colostomy may be necessary.

SPRIGGS and MARXER report that in the course of observation and treatment of 208 cases of multiple diverticula of the large bowel they were able to photograph the affected parts and to observe the progress of the disease over a period of several years.

Diverticulosis of the large bowel occurred in 10 per cent of 1000 consecutive patients examined roentgenologically. It is twice as frequent in men as in women. It occurs in the latter half of life. The small diverticula rarely cause symptoms. In 166 cases the pelvic colon was involved in 170 the descending colon in seventy-nine the ascending colon in thirty-three the transverse colon in thirty-three the entire colon in twenty-four the caecum in eight the appendix in six and the rectum in four.

The authors describe the stages of diverticulosis from the prediverticular stage through the stage of irritation to the fully developed sac or diverticulum. They utilize both screening and roentgenography. All parts of the bowel being brought into view with the barium meal or enema. The pouch which is likely to set up diverticulitis is one which cannot easily discharge its contents and is only partially filled by the barium. In such a diverticulum the shadow is crescentic.

The etiology of the disease is not yet understood. Septic foci elsewhere in the body are frequently associated with the condition. The evidence points to an inflammatory change in the early stages. That the small hernia are prone to occur where the blood vessel penetrates the bowel wall has been accepted as evidence that they are passive extrusions from the onset. As a rule the patient gives a history of constipation. It is the delay and stagnation in the pouches which is harmful.

In the prediverticular stage there are no symptoms. Also in cases of established diverticula there may be no symptoms if there is no diverticulitis. However some patients complain of flatulence, pain, distention and diarrhoea alternating with constipation. The symptoms of rupture of the pouch into the peritoneum are those of an acute local or general peritonitis.

The clinical features of diverticulitis are those of a low form of inflammation in the large bowel usually in the left lower abdomen spreading to neighboring structures. Abdominal pain around or about the umbilicus, constipation or diarrhoea, frequent micturition and the occasional presence of a sausage-shaped tumor in the left iliac fossa leading to obstruction are the usual symptoms.

The roentgenological features of diverticulitis are definite. With a barium meal or enema typical rounded oval or crescentic shadows of the barium in the diverticula will usually be recognized. The characteristic features however are the spike or palisade-like projections of barium shadows from

the lumen of the bowel the walls of which are thickened by inflammation and fixed. Serial films when superimposed show no variation in the outline of the shadows.

When early diverticulitis is recognized the prognosis for reasonably good health and for life is usually favorable. The graver complications occur in late or undiagnosed cases. Medical treatment consists in keeping the alimentary canal and especially the colon as healthy and clean as possible. A simple regular diet of fruit and vegetables is advantageous. Paraffin oil daily and attention to bowel movements are essential. The colon is washed out with a saline enema daily. Enemas of from 3 to 6 oz. of warm olive oil are beneficial. The patient is warned of the danger of obstruction. When obstruction occurs colostomy is often necessary. Frequently the swelling disappears completely. Moynihan reports a case in which the entire tumor disappeared the lumen of the bowel was restored and the colostomy closed. JOHN W. LUTCHMID.

Lockhart Mummery J. P. The Treatment of Obstructive Lesions of the Colon. *B. M. J.* 1927, 1, 95.

At the present time operation can be performed in one stage in most cases of chronic obstruction of the colon. The important early symptom of such obstruction is irregular bowel action. X-ray examinations should be repeated to avoid accidental appearances and belladonna given to eliminate spasm. Sigmoidoscopy tells nothing of the bowel higher up. In suspicious cases exploratory laparotomy should be advised.

The most frequent cause of partial obstruction is cancer. Diverticulitis may have the same effect and may be difficult to differentiate. Signs of inflammation and absence of bleeding will usually assist the diagnosis but it must be remembered that cancer and diverticulitis are often associated. Adhesions are frequent causes of obstruction and are difficult to diagnose. Hyperplastic tubercle and chronic volvulus are rare causes of obstruction.

The preparation of the patient should include a week in bed, catharsis and the free administration of fluids. For anaesthesia the author favors twilight sleep or nitrous oxide combined with spinal or local anaesthesia. He uses a diagonal incision for exposure and prefers open resection. Closed methods have the disadvantage that for haemostasis reliance must be placed on crushing alone. The author divides the bowel at an angle to insure a blood supply to the edges, leaves a gap on one side of the mesentery to prevent the formation of a mesenteric hematoma and covers the bowel junction with omentum to prevent the formation of adhesions. Except in resection of the caecum he always performs a temporary colostomy.

Both the caecal angle and the transverse colon are usually easy to resect. In the former the author implants the small gut into the side of the transverse colon. When the bowel must be thor-

seven were cases of multiple atresia. In 30 per cent of the latter there were from two to nine occlusions of the jejunum or upper ileum.

The first attempt at surgical treatment was made by Bland Sutton. Three cases in which a cure was obtained by operation have been reported. The operative procedures were (1) end to end anastomosis (2) anterior ileoduodenostomy and (3) posterior gastro-enterostomy.

Sweet and Robertson report a case in which the occlusion was in the third portion of the duodenum and an anterior gastro-enterostomy was done on the ninth day. Recovery was good except for some intermittent vomiting. Three weeks later there was another loss of weight attributed to the loss of bile and pancreatic ferments due to the vomiting. The proximal end of the duodenum was therefore anastomosed to the ileum distal to the gastro-enterostomy opening. After this operation a blood transfusion was necessary but after the transfusion the condition improved rapidly.

In the authors' opinion intestinal atresia requires surgical interference and when the occlusion is single and situated in the duodenum or high up in the jejunum the prognosis is favorable.

WILFRED L. CRANHAM, M.D.

Moynihan, Sir B. Diverticula of the Alimentary Canal. *Lancet* 1927 (cxli) 107.  
Spriggs, E. J. and Marzoe, O. A. Multiple Diverticula of the Colon. *Lancet* 1927 (cxli) 667.

MOYNIHAN defines a diverticulum as a protrusion of the mucous membrane of the bowel with or without the other coats outside the lumen of the intestine. Embryonic diverticula are associated with the development of the appendix, liver, pancreas and thyroid gland. A diverticulum arising as a bud from the wall of the bowel and containing all of the coats is said to be congenital in origin and true in structure. A diverticulum occurring after development is complete and due to some abnormal process is said to be acquired in origin and false in structure. An acquired diverticulum caused by protrusion outward of the mucosa from the lumen of the bowel due to increased pressure is a pulsion diverticulum. A diverticulum formed by adhesions to inflamed lymph glands etc. is known as a traction diverticulum.

**Diverticula of the pharynx.** There are three recognized forms of pharyngeal diverticula.

1. A high lateral form, containing air and an accumulation of mucus. This results from a lack of fusion between the brachial clefts.

2. A form often erroneously called oesophageal which usually arises from the back of the pharynx in the midline and extends toward the left side. It may form a considerable sac. The point of origin of the sac lies between the middle oblique fibers and the lower circular fibers of the inferior constrictor now called the cricopharyngeus.

3. A lateral form of diverticulum arising from the pharynx at the hiatus or weakest point where

the recurrent laryngeal nerve and inferior thyroid vessels come through.

If the sac of the diverticulum is large and retains food it should be removed by operation. The author does not advocate the two-stage operation employed in England. For many days after the operation he feeds the patient through a Jutte tube passed through the nose.

**Diverticula of the oesophagus.** Oesophageal pouches occur chiefly at or near the bifurcation of the trachea and at the lower end of the oesophagus 1 or 2 in. from the diaphragm. In the former position they are of little clinical importance. At the lower end of the oesophagus they are known as epiphrenic diverticula and are occasionally detected by the roentgenologist.

**Diverticula of the stomach.** Diverticula of the stomach are very rare. They occur near the pylorus and at the oesophageal orifice. A troublesome pouch near the pylorus may be treated by gastrectomy. A pouch near the cardia of large size and causing symptoms may be treated by large draughts of water. The patient is then placed in that position which enables the diverticulum to drain out. The contents are thus washed away into the stomach.

**Diverticula of the duodenum.** In a consecutive series of 6847 examinations after a barium meal Case found duodenal diverticula in eighty-five cases (1.2 per cent). In about half of the cases the sac arises from the second portion of the duodenum. The condition may be congenital or acquired. X-ray examination usually makes the diagnosis. Os Spriggs' series of eighteen cases thirteen were successfully treated medically. The author has excised one pouch 13½ in. long from the outer side of the second part of the duodenum. Stiles removed a pouch the size of a hen's egg arising from the concavity of the duodenum and containing masses of pancreatic tissue in its wall. Diverticula of the jejunum and ileum occur with considerable frequency and are often multiple.

**Diverticula of the large intestine.** Diverticula of the colon are common. They occur in all parts of the colon but most commonly in the appendix. They are often diagnosed as left-sided appendicitis, vesico-intestinal fistula or probable malignant tumors of the colon. Spriggs reports 100 diverticula of the large bowel in 1000 consecutive examinations. The cause is a yielding of the intestinal wall due to long-continued pressure within the lumen. The gut yields at its weak point the mesenteric border. The following conditions may develop in diverticula: diverticulitis, acute or subacute inflammation due to infection retained in the sac, peridiverticulitis often leading to intestinal obstruction, local peritonitis from perforation of the sac and carcinoma of the colon from infection and long continued chronic irritation.

The diagnosis of this condition is usually by the roentgenologist. In the great majority of cases medical treatment will check the symptoms. This should include a diet leaving little residue the

per cent and the acute cases with perforation and its sequelæ 18 per cent. The total mortality was 2.8 per cent which is low. Fromme's total mortality was 9 per cent. Adams 7.2 per cent. Kuemmel's 6.9 per cent. Engell's 6 per cent. Sonnenburg's 6 per cent. Hoffmann's 3.8 per cent. Sigmund 5.5 per cent. Steichele's 5.2 per cent. Chiari's 3.5 per cent. Témons 3.5 per cent and Hoernike's 3 per cent. Marsch however reported a total mortality of 1.5 per cent.

In 1765 acute cases including those with peritonitis which were operated upon the mortality was 4.1 per cent. Marsch gives the mortality in such cases as 4.5 per cent. Nather as 4 per cent. Sigmund as 5.5 per cent. Chiari as 6 per cent. Steichele as 6.4 per cent. Seiffert and Augusti as 6.8 per cent. Hoffmann as 6.8 per cent. Suermondt as 7.8 per cent and the Swiss statistics for 1912 as 1.8 per cent.

Of the 591 patients 1386 were females. The greater proportion of females is explained by the fact that women more often seek operative help in the chronic stage (21). Of the patients seen in the acute stage 942 were men and 823 were women. Thirty-one of the seventy-three deaths were those of females and thirty-six were those of males. The mortality was therefore 0.5 per cent higher among the females in contrast to all other statistics which show a higher mortality among the men.

Table 2 gives the causes of death in the different types of appendicitis. The operation done in the cold stage after abscess or peritonitis was usually performed from four to six months after the subsidence of the attack. In 826 cases so operated upon there were no deaths.

The cases of obstructive and gangrenous appendicitis were very numerous. They are included in these statistics because the exudate was still sterile or at most only very slightly infected. In the statistics of most surgeons such cases with early evacuation are reckoned as cases of peritonitis. In the series reviewed 1290 such cases were operated upon.

Therefore appendicitis simplex phlegmonosa necroticans constituted almost 50 per cent of the entire material. In this group there were ten deaths a mortality of 0.6 per cent. Two patients died of pneumonia two of embolism one of acute leucæmia and one of aggravated cavernous tuberculosis. In the last case mentioned the operative wound showed no tendency to heal. Two patients succumbed to peritonitis. Steichele's mortality was 1 per cent and Engell's per cent.

The mortality following perforation was 13 per cent. Steichele's percentage was 12. Sigmund's 11. Sonnenburg's 5 and Doederlein's 12 to 17.

There were 165 cases of appendiceal abscess. Thirteen (7.8 per cent) were fatal. In five of the fatal cases the cause of death was diffuse peritonitis and in two hepatic and subphrenic abscess. Secondary cause were embolism pneumonia and adhesions to ileus in one case each and heart failure

after the abdominal wound had nearly healed in three cases.

The mortality percentages of other conservative surgeons are as follows: Chiari 15.6 per cent. Fromme 13 per cent. Hoernike 4 per cent. Steichele 2.9 per cent and Suermondt 0 per cent. Those of radical surgeons are: Noetzel 13.4 per cent. Wolff 10 per cent. Dewes 6.8 per cent. von Brunn 5.1 per cent. Eichhoff 4.6 per cent and Témons 3.5 per cent. Among surgeons who take a middle stand is Koerte who operates radically up to the fifth day and after that incises. Koerte's mortality is 5.2 per cent. The surgeons who habitually incise report the following mortalities: Hoffmann 13 per cent. Engel 10.7 per cent. Ruedinger 10.2 per cent. Sigmund 5.1 per cent. Adams 4.6 to 4.2 per cent. Marsch 4.3 per cent and Gnet 1.6 per cent.

Averaging the thirty sets of statistics known to the author the mortality of the radical treatment of abscess is found to be 7 per cent and that of moderate or conservative treatment 7.1 per cent. It is therefore apparent that the same results are obtained by very different methods.

The belief of Rehn and his pupil that infection of the peritoneum is not to be feared after appendectomy with the separation of all adhesions and thorough lavage was not confirmed. It must be admitted however that extension of the infection occurs somewhat more frequently following mere incision and drainage. A careful study of the causes of death shows that in cases of abscess the fatal complications can appear in exactly the same way whether operation is performed or not: local extension metastasis and ileus threaten in the one case as well as in the other.

The total number of abscesses of the pouch of Douglas which were operated upon was forty-two. There were nine cases of evacuation of the primary abscess without laparotomy with two deaths and thirty-one secondary Douglas abscesses with one death.

In cases of peritonitis with complete perforation but as yet no adhesions encapsulated abscess or extensive peritoneal suppuration but with considerable injection of the intestinal serosa and in the ileocecal region and the pouch of Douglas a free turbid seropurulent ichorous exudate containing floccules of fibrin appendectomy as done the exudate swabbed out and drainage established. The abdominal cavity was never washed out. The mortality was 4.6 per cent—ten deaths. From this it appears that the prognosis of beginning peritonitis is quite favorable. The percentage of cure is almost half again as high as that in the older closed abscesses. The explanation appears to be that the virulent infection is robbed of its progressive character by prompt surgical treatment. Moreover the source of infection is removed with the excision of the gangrenous appendix and the operation is performed before the patient has become weakened.

ou hly free the diagonal incision is of value in rectecting the plican an l

In the upper pelvic incision resection is not difficult. In the lower incision there is not enough bowel below the lesion for a proper resection and such a resection will interfere with the blood supply of the rectum. One alternative consists in drawing the cut end of the colon into the rectum by a tube and fixing it there with stitches. This is dangerous because it may interfere with the rectal blood supply. The other alternative is complete abdominal perineal resection.

The mortality of colostomy is about 16 per cent. The results are good as far as immediate risk and restoration of function are concerned and when the operation is performed for malignancy it gives the best results of all cancer operations as the postoperative tendency toward recurrence of the condition is light. (Hart & Clark, Jr. M.D.)

Fedmann J. F. and Clark H. F. Tumors of the Caecum. *Br J Surg* 1927 LXIV 2

Forty-eight cases of cancer tumor were studied by Fedmann and Clark. Carcinoma was found in thirty-seven tuberculous in even chronic inflammation in two and lymphosarcoma in one. In one the nature of the tumor was not determined.

Other tumors occur naturally developing in the caecum are cysts, granuloma, lipoma, tuberculoma, papilloma, of the leiomyosarcoma, leiomyoma, and actinomycosis, neoplasms.

Three of the seven cases of tuberculous were of the hyperplastic type with uterine leiomyosarcoma. In the fourth there was involvement of the right lung and the caecal growth was considered to be secondary. In the three others the tumor was a tuberculoma.

In all of the cases of tuberculous tumor the incision resection (from 10 to 12 in. of the ileum) the entire caecum the ascending colon and from one third to one half of the transverse colon was removed. In all cases of the ileum to the transverse colon (end to end) was performed and resulted in a symptomatic cure. In three cases of tuberculoma only an appendectomy was done.

The caecum is prone to malignant degeneration because of its physiological and anatomical relation to the regional glandular metastases were found in 25 per cent of the cases repeated involvement of the ileocecal valve in 48 per cent. The most common signs and symptoms were pain, a loss of weight, a mass, and marked anemia. Roentgen examination was the most accurate in all the stages.

For malignancy also the ileocecal operation was the treatment of choice being performed in twenty-eight of the thirty-seven cases of carcinoma. The mortality was 21.4 per cent.

The authors draw the following conclusion: Carcinoma is the most common caecal tumor requiring surgical intervention. Lymphosarcoma is the most highly malignant tumor.

2. Caecal carcinomata are slow growing and only moderately malignant. Secondary infection invades the tumor early and is the chief cause of the profound cachexia in these cases.

3. In carcinoma of the caecum distant metastases are rare.

4. Secondary intestinal growths are not uncommon and should always be sought. Obstruction caused by a malignant tumor may simulate chronic appendicitis. (John J. Malone, M.D.)

Schaer W. Causes of Death in Appendicitis. (Ber Todes nach in bei Appendicitis) *Br J Surg* 1926 CXI 30

This report is based on 501 cases of appendicitis operated upon in the period from 1918 to 1924. Of the 1765 were operated upon in the acute stage including diffuse peritonitis with seventy-three deaths a mortality of 4.2 per cent and 826 were operated upon in the chronic or quiescent stage with no deaths. In 877 cases operated upon within forty-eight hours after the onset of the condition there were eighteen deaths a mortality of 2 per cent whereas in 838 which were operated upon in the third day or later there were fifty-five deaths a mortality of 6.5 per cent.

With regard to the indications for operation the following rule was applied: Acute appendicitis should be recognized as early as possible and operated upon without delay unless spontaneous regression of the inflammation is distinctly evident and unlikely as in the cases of certain elderly persons the operation would be associated with too great risk.

Spontaneous retrogression of an abscess is not awaited. In agreement with the Enderlen's school importance is placed on a short paracostal incision. If the exudate is too thick a rubber drain is placed in the wound and if it is purulent both gauze and a drain are inserted. Effusion into the pouch of Douglas requires a second drainage which is done downward from the angle of the wound. Diffuse peritonitis an opening is made on both sides. In every case only one drain is inserted on the side toward the flank and to avoid the pouch of Douglas under local anesthesia and the appendix not sought for. When the general condition is unfavorable the operation is terminated. If the condition is not good the appendectomy is done by drainage of the abscess and a drainage of the vagina. If the abdomen is then roughly washed out without eversion of the intestines.

In the after-treatment the patient is kept in the sitting position. Food is given three times a day. Solvents are administered subcutaneously each day. After the third day peristalsis is stimulated by a cathartic and the patient is allowed to get up. Fresh perforations are permitted but the presence of vasomotor pain is very hazardous.

According to Table 1 the chronic cases constituted about 3 per cent of the total number (591) the acute cases about 97 per cent.

perforated appendicitis 13.44 per cent and that of beginning and diffuse peritonitis 16.4 per cent.

Up to the thirtieth year the primary causes of death far exceeded the secondary causes. Later the ratio was reversed. It appears that the danger from pneumonia is as great for patient under 30 years of age as for those over 50 years old. Embolism was most frequent between the thirtieth and sixtieth years. The fact that the prognosis of appendicitis is best in the years in which the condition is most frequent is evidence of the importance of the general resistance of the organism as a whole during those years. HUTCHINSON (2)

**Paschoud II. Before Operation for Appendicitis in the Quiescent Stage—A Serious Typical Lesion of Appendiceal Origin (A la t l'opérati on de l'appendicite a l'etat quiescent). Révision typique de l'opérati on de l'appendicite a l'etat quiescent.**  
R. M. 9713

Paschoud describes a syndrome which develops over a period of many years as the result of mild appendicitis in infancy or early childhood and is eighteen times more common in females than in males. The condition has been thoroughly studied from the beginning inflammatory stage through the obstructive period to the final septic stage but the constancy and the site of the supracæcal strangulation often noted have not been emphasized.

The condition is most often described as a membranous or cicatricial percolitis and has been treated by numerous operations such as resection, caecostomy, colectomy, colectomy and typhlosigmoidostomy. It has three long periods—the first in infancy, the second toward puberty or in early adult life and the third in mature adult life.

The first period has often a prodromal stage characterized by gastric symptoms, frequent indigestion, vomiting, asthenia, constipation and acute abdominal pain without exact localization. The appendiceal stage is prolonged and characterized by constipation followed by hepatic disturbances and vaguer at times acute pain in the right iliac fossa with or without fever, vomiting or muscle spasm. Deep palpation reveals a localized tender point. The appendiceal phase is never associated with the external inflammatory signs of appendicitis or of even a mild enteritis. The patient apparently recovers but loses weight and the condition recurs at varying intervals during childhood. Loss of desire to defecate, the appearance of traces of albumin in the urine and times coli bacilluria occur.

In the second stage there is more generalized pain in the right side from the hypochondrium to the pelvis. Other signs are slight abdominal distention, gurgling (always caecal), palpable caecum which is painful during constipation, slight and irregular fever, frequent dysmenorrhœa and as a rule leucocytosis. X-ray examination with the use of barium shows distention of the caecum and barium retention in both the caecum and the ascending colon. If untreated the patient continues to lose weight with

or without periods of transient amelioration. General abdominal ptosis occurs. The gastro-intestinal tract becomes atonic. Periods of alternating constipation and diarrhoea increase. Oliguria, albuminuria and pyuria are often present.

The third stage of the condition is characterized by obstructing stenosis and septicity. Paschoud has seen only a few patients in the septic state. All had complete obstruction and were seriously toxic. Both the immediate and the late mortality was high.

The acute classical appendicitis with inflammation of the base of the appendix and caecum and at times of the ascending colon and the terminal part of the ileum may also be associated with board-like induration but never leads to the condition under discussion because the infecting agent and the reaction of defense are entirely different. Ordinary appendicitis is caused usually by the streptococcus hemolyticus and more rarely by the streptococcus viridans whereas the ascending colitis type is due to the colon bacillus probably associated with an anaerobe usually the bacillus perfringens. The author agrees with Olinczyc that the colon bacillus localizes first in the appendix and is the cause not the result of the stasis.

Important factors in the production of parietal cicatricial membranes and supracæcal obstructing bands are the caecocolic lymphatics. The vast network of caeco-appendiceal lymphatics end in the ileocaecal glands along the terminal part of the superior mesenteric artery and continues with the ascending colic lymphatics. According to Luno the ileocaecal glands connect with the glands of the root of the mesentery, the ascending colon and the parietal lymphatics. Croizat has described anastomoses between the appendiceal colic renal hepatic and diaphragmatic systems. The caecum is held by (1) a ligament which arises on the outer caecal wall and is inserted high on the posterior abdominal wall just under and at times partly on the kidney, (2) a ligament formed by the insertion of the mesentery and (3) the appendiculo-ovarian ligament or the falciform peritoneal fold which unites and connects with lymphatics of the appendix and ovary and may explain the origin of ovariitis and salpingitis on the right side due to the colon bacillus.

By X-ray study which should be made with the patient in the standing and recumbent positions the three quarters standing and recumbent positions and the Trendelenburg position the caecal mobility, the degree of displacement and the eventual pathological fixation may be determined. The appendix is visualized more often than is expected.

Paschoud urges prompt appendectomy in the cases of young persons with even a doubtful appendiceal phase preceded by the prodromal period and followed alternately by constipation and diarrhoea with large quantities of indol and stator and a trace of albumin in the urine and especially a beginning coli bacilluria. An examination of the ascending colon should always be made. Simple

The prognosis of diffuse peritonitis is much less favorable. Of seventy-two patients with diffuse peritonitis forty-one died. Appendectomy was performed in twenty-eight cases. In twelve repeated incision and the establishment of drainage was all that could be done. Lavage was done in nineteen cases. The mortality was 56.9 per cent. In more than two thirds of the fatal cases peritonitis was the immediate cause of death. Twenty-eight patients died of diffuse peritonitis. Seven cases presented in addition to the abdominal lesion nothing but slight septic swellings in the spleen and tumescence of the cecum. In four cases there were pulmonary complications from extension of the peritoneal process pulmonary abscesses and septic pulmonary hemorrhages. In ten cases there were disturbances of the circulatory organ especially the heart. In five cases paralytic ileus developed as a complication of the peritonitis after the fifth day and proved fatal.

Of the remaining thirteen deaths two were caused by heart failure after healing of the abdominal lesion, two by abscesses of the liver associated with suppurative abscesses, five by pneumonia, two by embolism and one by sepsis after contractions within the abdominal cavity become normal. The mortality rates given by other surgeons in comparable cases were as follows: Moskowitz 83 per cent, Hoernike 78 per cent, Fromme 78 per cent, Vogel 76 per cent, Seiffert and Augustin 69 per cent, Steichele 64 per cent, Niemann 62 per cent, Sigmund 57 per cent, Zenler 55 per cent, and Engel 43.3 per cent (last percentage based on only thirteen cases). In septic toxic peritonitis lavage may give rise to the most alarming symptoms from shock to the peritoneum. In diffuse suppuration or focal exudate thorough lavage is undoubtedly of benefit. Bilateral drainage preferably with the addition of drainage of the pouch of Douglas is considered the best procedure.

Table 3 shows the causes of death in acute appendicitis and the duration of the condition. The most severe lesions were found on the third day. In these cases operation should have been performed earlier. This group shows a higher mortality than any of the others but it is surprising that in 877 cases operated upon within the first two days there were eighteen deaths. Not only has acute appendicitis become more frequent but the occurrence of complete perforation within the first two days has also become more common.

Fromme's assumption that the prognosis of appendicitis runs parallel with that of peritonitis was not substantiated. In the thirty-nine cases cited by the author in which death was due to peritonitis the deaths were distributed over the first fourteen days which shows that a patient who has been operated upon for acute appendicitis may die of diffuse peritonitis on the first or on the fourteenth day of the condition. Of 150 patients operated upon on the first day only 4 per cent died of peritonitis. The mortality rises with the length

of time the disease has been present reaching a maximum of 61 per cent between the seventh and tenth days. The great danger of delay is therefore evident. The Swiss mortality rates for the year 1911 were as follows:

| Swiss statistics<br>with 8 cases | Total mortality |         |         |         |
|----------------------------------|-----------------|---------|---------|---------|
|                                  | 1st day         | 2nd day | 3rd day | 4th day |
|                                  | 7               | 47      | 07      | 27      |
|                                  | 32              | 4       | 69      | 55      |

Table 4 gives the causes of death and the length of time between the operation and death. The latest death which occurred sixty days after the operation was due to pulmonary tuberculosis. In all of the fatal septic toxic cases death occurred before the end of the first week usually on the third or fourth day. Patients with pulmonary complication cardiac disturbances and paralytic ileus survived until the end of the second week. Two patients with incised abscesses lived to the third week.

The importance of age in relation to the prognosis of appendicitis is shown in Table 5. Nearly 70 per cent of the patients were between the tenth and thirtieth years of age. Diffuse peritonitis occurred most frequently in patients between the eleventh and twentieth years. Ten per cent of the abscesses were found in children. This percentage was not exceeded until after the fiftieth year when it reached 14. Children and elderly persons come to operation later.

The prognosis was found to be best in the years of life in which appendicitis is most frequent. Before the tenth year of age the mortality was 3.6 per cent. Ritter gives it as 0.2 per cent for the first fifteen years of life. Seiffert and Augustin as 1.4 per cent for the first decade. Höffmann as 1.3 per cent and Zander as 2.6 per cent. The minimal mortality of 1.0 per cent was found between the twenty-first and thirtieth years. After the thirtieth year the mortality rose reaching from 20 to 25 per cent after the fiftieth year of age.

The mortality after operation for appendicitis is summarized as follows:

|  | Males | Females | Total | Deaths | Survivors |
|--|-------|---------|-------|--------|-----------|
| Acute non perforated phlegmonous appendicitis                    | 69    | 608     | 1,90  | 9(3)   | 69        |
| Acute perforated appendicitis                                    | 87    | 74      | 65    | 3(5)   | 72        |
| Appendicitis with gangrenous peritonitis                         | 135   | 3       | 33    | 0(7)   | 4         |
| Appendicitis with diffuse peritonitis                            | 38    | 34      | 7     | 4( )   | 56        |
| Chronic appendicitis and appendicitis complicated by peritonitis | 63    | 563     | 86    |        |           |
| Total  | 1     | 386     | 50    | 73(36) | 78        |

The total mortality was 2.81 per cent. The mortality of acute appendicitis 4.13 per cent. That of



depends upon the activity of its musculature. The factor initiating this activity is not known.

It has been generally believed that during digestion some stimulus arises in the stomach or intestine which reflexly induces the musculature of the gall bladder to contract at the same time that the sphincter of the common bile duct is opened. Whitaker cites considerable proof against this assumption. One of the supposed reciprocal parts of the mechanism can be destroyed without directly affecting the action of the other.

Whitaker cites experiment which seem to indicate that a partly collapsed gall bladder is a more efficient concentrating mechanism than a distended gall bladder. It is conceivable then that in any condition in which the gall bladder is maintained in partial collapse and refilling is prevented concentration might go on to precipitation and that the conditions favoring the formation of gall stones in the human subject may be those which maintain the gall bladder in a partially collapsed state over long periods of time. Such partial collapse could be brought about by (1) too often repeated stimulation to emptying i.e. frequent meals or (2) insufficiency of the sphincter of the common duct from atonic pre-existing refilling. Possibly also debilitating diseases such as diabetes or typhoid may lower the muscle tonus of the gall bladder resulting in incomplete emptying and stasis. There is little doubt that reactions to infection play a part in cholelithiasis but this is not incompatible with the foregoing concept.

In attempts to prevent the formation of gall stones attempts must be combated by proper dietetic habit. Not infrequent feedings but the ingestion at long intervals of meals fairly rich in fat is indicated. A person should be hungry when he eats as hunger gives to the tone of the alimentary canal and gall bladder is high. When a meal is eaten under such conditions the digestive organs attack it vigorously and the gall bladder empties itself in a few hours. The meal is rapidly disposed of and the gall bladder rapidly refills with bile. Small stones and biliary acids are cleared out of the gall bladder by this process. Even when the organ is diseased to the extent of stone formation it may show a great deal of activity. However if it contains many stones large for its passage through the cystic duct the stagnation of bile rich in fat may only aggravate the symptoms. Under such conditions the only recourse is cholecystectomy. J. C. S. G. O. R. W. D.

Finkelstein B. Echinococcus Disease of the Bile Passages. *Ech. kku de Gal. ga ng l l*  
*k m d Ck K k d F k k k g b Ku*  
*g b p f a*

Echinococcus disease of the bile passages is a very rare in the Transcaucasus constituting only a per cent of all echinococcus affection. In 147 operations for echinococcus cysts the author found involvement of the deeper bile passages in only ten. In the literature he was able to find only thirty

eight cases. He divides cases of echinococcus infection of the biliary tract into three groups: (1) echinococcus disease of the gall bladder (2) echinococcus disease of the deeper bile passages and (3) echinococcus disease of organs contiguous to the bile passages. In the last group the cysts compress the bile passages mechanically.

Echinococcus disease of the gall bladder is very rare. In almost all of the six cases known to the author (two of them his own) suppurative inflammation of the gall bladder was found. To date it has not been determined whether the echinococcus can develop in the gall bladder primarily. In one of the author's cases which was fatal autopsy revealed a purulent subdiaphragmatic echinococcus cyst. It is probable therefore that the cyst in the gall bladder was secondary.

The clinical picture of echinococcus infection of the gall bladder is that of an inflammation which develops slowly and may be associated with jaundice. As the result of the infection the pain and temperature increase and the picture of peritonitis develops. If operation is not performed the condition leads to empyema of the gall bladder—as in one of the author's cases in which removal of the gall bladder was followed by recovery—or to perforation into the free peritoneal cavity—as occurred in the author's second case. The fluid in the abdominal cavity may have the character of an ascitic fluid for a long time and the amount of it may be very large (up to 10 liters).

If the gall bladder alone is affected operation gives a very good result unless perforation into the free abdominal cavity has occurred or there is a suppurating echinococcus cyst in some other region. In the absence of complications a simple cholecystectomy may be performed and if a fistula results it may be closed by a secondary plastic operation. The author recommends cholecystectomy for only those cases in which the wall of the gall bladder is markedly changed.

Finkelstein has 14 of thirty four cases of echinococcus disease of the deeper bile passages three of which were his own. When there is obstruction of these passages by an echinococcus cyst and when there is a communication between a cyst and the bile passages the clinical picture is that of a severe cholangitis. Nearly always the condition is due to a cyst of the liver which suppurates and communicates with one or both of the deep bile passages or the passages are obstructed by daughter cysts. The gall bladder also is involved. It becomes considerably distended its walls become thickened and the bile becomes cloudy or purulent as in a case in which the author was obliged to drain three cavities—a cavity in the right lobe of the liver the gall bladder and the greatly dilated choledochus which was obstructed by a daughter cyst.

In some cases the diagnosis may be made before operation—as for example when echinococcus cysts are expelled. In other cases a definite diagnosis cannot be made even at operation. The most serious

appenlectomy offers a good chance for cure in the first period but not for established cæcocolic stasis. Paschoud does not approve of cæcocolic or cæcoperxy. Peristaltic freeing of a lhesion is the exercise of various ports at luminal physical culture and massage combined with prolonged internal disinfection of the intestine and kidney (collage) and the systematic use of the anti anaerobic serum of Weinberg have given excellent results. In one case a cure was obtained by cæcocolicotomy.

WALTER C. BURDET, M.D.

Gurewitsch, C. M. Intestinal and Intraperitoneal Hemorrhage After Appendectomy (Ueber die intra- und intraperitoneale Blutung nach Appendektomie). *Z. f. Chir.* 1916, 11, 22.

In the author's opinion the common causes of intestinal or intraperitoneal hemorrhage after appendectomy are sepsis and thrombosis of the mesenteric and omentum with consequent embolism of the perito-intestinal tract. Frequently both are combined as nearly all cases of hemorrhage begin with the clinical signs of an infection (an increase in the temperature, chills, etc.). Gurewitsch reports a case of this type in which the hemorrhage was caused by embolism of the intestinal wall.

He reports also 11 cases in which appendectomy was followed by intraperitoneal hemorrhage and the accumulation of air in the abdominal cavity. On the fourth or fifth day after the operation the patient suddenly experienced severe pain like that of a perforation of the stomach or the rupture of a tubal pregnancy. This was associated with signs of shock, irritation of the peritoneum, distention of the abdomen, abdominal wall swelling, disappearance of liver dullness, and hemorrhagic vomiting.

Examination of the lumbar pump revealed entirely normal conditions. The ligatures were intact and there was no visible bleeding. The author explains these cases by von Eiselsberg's theory that the operation is followed by a retrograde embolism in the region of the stomach. In the latter condition, as in biliary peritonitis, the severe symptoms (perforation pain, hemorrhage, accumulation of air in the abdomen) may be due to very small perforations which are easily overlooked. There is no way in which such hemorrhages can be prevented. They belong to the complications in which surgical measures are usually of no avail. (Dissent.)

## LIVER GALL BLADDER PANCREAS AND SPLEEN

Vespignani, A. Variations in the Impression of the Gall Bladder on the Stomach and Duodenum in the Roentgen Picture (Sulle variazioni dell'impressione della vescicola biliare sul duodeno). *Riv. Chir.* 1917, 25.

The impression of the gall bladder on the stomach and duodenum is one of the best indirect signs of cholecystitis. It appears in the form of a regular

concave line which is more or less arched. A shallow curve is characteristic. A more arched curve must be differentiated from that of the lesser lobe. The gall bladder impression is distinguished from the impression of the colon by the gas in the colon and by the fact that the colonic impression is more frequently seen in the erect than the horizontal position while the contrary is true of the gall bladder impression. The impression of a tumor of the head of the pancreas is a segment of a circle with a center lower down than that of the gall bladder impression.

In general it may be said that a gall bladder impression indicates increased tension within the gall bladder or abnormal resistance of the gall bladder walls. In the great majority of the cases operated upon, an impression has been found to indicate cholecystitis. In some cases this was associated with a lhesion to the stomach and the first and second parts of the duodenum which held the gall bladder in a fixed position. In these cases in which there were no calculi or no external signs of cholecystitis there was cholecystitis without stones. In a few cases the overdistention of the gall bladder seemed to be due only to spasm of the duodenum.

ALFRED G. M. AGAN, M.D.

Whitaker, L. R. The Mechanism of the Gall Bladder and Its Relation to Cholelithiasis. *J. Am. Med. Ass.* 1917, 1, 552.

Whitaker states that there are two views as to the mechanism in which bile from the gall bladder is delivered into the intestines after the ingestion of food. The one most generally accepted is that emptying is a passive process depending upon external pressures and the elasticity of the viscus. The other is that the contents of the gall bladder are forced out by the action of the musculature of the viscera. There are two views also as to the degree of emptying of the gall bladder. According to one the gall bladder is never completely empty whereas according to the other all of its contents may be evacuated after a meal except a little fat.

In discussing active versus passive emptying of the gall bladder, Whitaker cites various authorities and experiments to show that the theory that pressure of the diaphragm and liver during inspiration forces bile out of the gall bladder and mechanical theories of emptying such as siphonage and suction of the duodenum have no sound theoretical or experimental basis and that the release of the common duct sphincter does not seem to be of great importance in the emptying of the gall bladder but has a function in the filling of the viscus. The evidence seems to be considerable against the theory that the flow of bile from the liver empties the gall bladder.

The gall bladder may be a completely emptied after the ingestion of fat that not a single drop of bile will drip from the lumen. This evidence that elasticity is not the responsible element smooth muscle stimulants contract the gall bladder. In Whitaker's opinion the emptying of the gall bladder

In a case reported by Latel and Vergnory a peri splenic hæmatoma which was formed after rupture of the spleen into halves remained encysted in the splenic pocket with few signs of its presence for eleven days. The patient had returned to work when it opened and caused intraperitoneal hæmorrhage. Simpson has reported a case in which no blood was found when the peritoneal cavity was opened but when the hand was introduced into the abdomen on the left side and the omentum was pushed back from the anterior abdominal wall a flood of blood was evacuated.

An intra splenic or subcapsular hæmatoma with an intact capsule may rupture and cause delayed hæmorrhage. The splenic pulp may undergo extensive destruction up to the vessel of the hilum and the intact capsule may circumscribe a large hæmatoma in which floats parenchymatous debris.

An apparently superficial injury of the capsule may be associated with extensive crushing of the splenic pulp but a bit of omentum or a neighboring organ may adhere to the capsule and limit the bleeding until the barrier is forced by increased pressure. A motor cyclist who was knocked unconscious in a collision with a street car showed marked immediate improvement but on the following day operation became necessary because of persistent pain and contracture in the left hypochondrium. I removed a very small quantity of black blood in the abdomen. Removal of the omentum which was adherent to the lower pole of the spleen revealed a fissure 3 cm. long. Just as a stitch as being taken some black clots escaped. These were followed by a profuse hæmorrhage which necessitated a rapid splenectomy. The capsule was found almost empty and only a few fragments of the parenchyma were adherent to the deeper surface.

In a case reported by Dmulin the signs of hæmorrhage appeared very late as the torn capsule was rolled up like a hood so that it immobilized a number of true ting blood clots.

The author does not place much diagnostic value on the distal shock as this is common to all abdominal injuries. Neither does the classical picture of internal hæmorrhage aid greatly in the diagnosis as it does not indicate the splenic origin of the bleeding. A study of the latent period has revealed many signs of unequal importance. The pulse rate rarely remains normal (50 to 100). The progressive acceleration of the pulse and peculiarly the decrease in the respiratory rate are of diagnostic aid. The respiratory rate in the upper abdominal type of localized contracture in the left hypochondrium is important and if it is persistent or a centuated when the rest of the abdominal men has become soft should suggest the presence of lesion in the region. The contracture is set up by the least effort of respiration and coincides with a hyperæsthesia of the region. Spontaneous pain is often due to irritation. The slope of the left hypochondrium may suggest a peri splenic hæmatoma.

When a serious splenic injury is suspected because of the nature, severity or site of an injury the patient should be kept in bed under observation for a week or longer after the accident. Observation of the pulse and the abdominal condition has permitted the author to operate before the occurrence of the delayed hæmorrhage. Hæmorrhage often occurs suddenly either spontaneously or as the result of exertion and is accompanied by severe pain which may be mistaken for that caused by a pulmonary complication or the rupture of a hollow abdominal viscus. The pallor, cold sweats, pulse rate and coldness of the extremities have the usual diagnostic value.

The author concludes that in severe injuries of the splenic region absence of the signs of serious hæmorrhage should not prevent intervention if the pain, contracture and pulse rate suggest a splenic injury. When instead of a peri splenic or subcapsular hæmatoma on the verge of rupture operation discloses only minimal lesions which perhaps have healed spontaneously, splenorrhaphy will be successful. Serious injuries that would end in delayed hæmorrhage and cases operated upon during hæmorrhage require splenectomy.

When peritoneal and extensive exposure are essential the author prefers the large transverse incision of Ruggs. During the latent period the elbow in position of Mayo in the upper part of the abdomen on the left side gives an excellent approach to the splenic pocket and to the upper pole of the spleen under the diaphragm.

The author reports eighteen collected cases. Recovery resulted in eight and death in ten.

WALTER C. BUCKET, M.D.

Schlegel A. Traumatic Hæmorrhage from the Spleen after a Twelve Day Interval (Traumatisme Splénique avec intervalle de douze jours). *Bull. Ch.* 1916, c. 1, 163.

Traumatic rupture of a healthy spleen is rare. The delayed spleen is ruptured more frequently. The incidence of splenic rupture is greatest in malaria (70 per cent), typhus, other infectious diseases, septic conditions and the hæmorrhagic diathesis. The chief signs are shock due to perforation and internal hæmorrhage. Hæmorrhage does not always occur immediately after the injury; sometimes it may be delayed for hours or even days. Koerte gives the longest delay as two or three days but in the literature there are reports of fifteen cases in which the interval varied from one and a half to nine days. In the author's case it was twelve days. In every instance splenectomy was done. Three patients died and twelve recovered. The mortality was therefore 20 per cent whereas when rupture and hæmorrhage occur at the time of the injury the mortality is 35 per cent.

The author's case was that of a man 43 years of age who was admitted to the hospital with symptoms resembling those of gastric perforation—marked rigidity of the abdominal wall, a small pulse

complication of obstruction of the bile passages is perforation. In one of the author's cases there was an echinococcus cyst on the under surface of the liver. During the operation this cyst was opened and as it communicated with the bile passages all of the bile flowed to the exterior and the patient gradually succumbed.

Of the author's cases of operation for obstruction of the bile passages recovery resulted in 20 and death in one. Of twenty such cases reported in the literature operation saved life in only ten. In some cases the operation must be performed in three stages: (1) cholecystectomy (2) transpleural opening of the subphragmatic cyst and (3) drainage of the bile passages obstructed by the cysts.

In cases of echinococcus disease belonging to the third group—those with involvement of organs contiguous to the biliary tract—the prognosis is good especially when the gall bladder is merely compressed.

The author concludes that the recognition of all forms of echinococcus disease of the bile passages presents great difficulties which can be overcome only by very careful clinical and roentgen examinations and serological tests. Koch (7)

#### Schwarz M. The Ducts of the Pancreas and Their Importance in Resection of the Duodenum

(1) A cystic malformation of the pancreas which is not associated with the bile ducts is not a disease of the pancreas but of the duodenum. (2) The ducts of the pancreas are of great importance in the resection of the duodenum. (3) The ducts of the pancreas are of great importance in the resection of the duodenum. (4) The ducts of the pancreas are of great importance in the resection of the duodenum. (5) The ducts of the pancreas are of great importance in the resection of the duodenum. (6) The ducts of the pancreas are of great importance in the resection of the duodenum. (7) The ducts of the pancreas are of great importance in the resection of the duodenum. (8) The ducts of the pancreas are of great importance in the resection of the duodenum. (9) The ducts of the pancreas are of great importance in the resection of the duodenum. (10) The ducts of the pancreas are of great importance in the resection of the duodenum. 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(99) The ducts of the pancreas are of great importance in the resection of the duodenum. (100) The ducts of the pancreas are of great importance in the resection of the duodenum.

The ducts of the pancreas show extraordinary variations. Clairmont distinguished ten types. The relative infrequency of serious injuries to the ducts in the course of resections of the duodenum is due to the fact that duodenal ulcer occurs most frequently in the first portion of the duodenum. Pancreatic function does not depend on the maintenance of any definite shape of the pancreas and the form of the gland is molded by the pressure available. In general the organ is hammer or tongue shaped.

The pancreas is developed from two ventral anlagen and one dorsal anlage. One ventral anlage later disappears while from the other is developed a part of the head of the gland with Wirsung's duct as its excretory duct. From the dorsal anlage are developed the tail, the body and the ventral or oral portion of the head of the gland with Santorini's duct as the excretory duct. Later the secretory duct of the larger ventral anlage loses its importance in favor of the duct of the small dorsal anlage.

The author examined sixty-four pancreases which he fixed immediately after their removal from the cadaver. He found that of the various methods of examination simple dissection was best. In twenty-five pancreases Santorini's duct was entirely absent. In twenty-three it communicated with Wirsung's duct but was present as a secondary excretory duct. In one-fourth of the cases it would have been possible to injure Santorini's duct in separating the pars horizontalis superior of the duodenum. Such injury might have led to un-

favorable sequelae since a part or in rare instances all of the gland may empty its secretion into the duodenum.

The course of Wirsung's duct through the tail of the pancreas is of little practical importance. In the head portion the duct usually bends caudad and dorsad but the direction of its course varies widely. In duodenal resection it is necessary to consider only injury to the small lateral branches of the duct.

Santorini's duct carries off the pancreatic juice from a portion of the gland which lies on the head of the pancreas extending ventrad from the oral portion. Santorini's duct shows even greater variations than Wirsung's duct. In general it runs dorsad from left to right and opens into the duodenum in the pars horizontalis superior or at the hepatic flexure. At its anastomosis it may attain the caliber of Wirsung's duct so that from this point onward the ducts of equal caliber run toward the duodenum. Occasionally Santorini's duct is the sole excretory duct.

The anastomosis of the ducts occurs usually in the head of the pancreas and more rarely in the body. As a rule the strands near the pylorus may be sectioned with safety. The greater the distance from the duodenum the more important are the ducts opening into the duodenum.

It is noteworthy that pancreases with a well developed Santorini's duct usually have a hammer shaped head. Therefore when the head is hammer shaped it is particularly important not to injure Santorini's duct.

The blood supply of the pancreas is derived from the superior and inferior pancreaticoduodenal arteries. Because of the alignment of anastomoses section of the superior artery is usually not important. Schwartz (2)

Perrin. Delayed Internal Hemorrhage in Injuries of the Spleen (L'hémorragie interne et décalée dans les traumatismes de la rate). *J. f. chir. b. g. et de ch.* 1906, 22, 696.

The syndrome of rupture of the spleen is dominated by internal hemorrhage. In some cases the hemorrhage occurs immediately after the accident and causes death within an hour. In other cases it may be delayed for from three to twenty-four hours and in still others may not occur until from three or four days to two weeks after the injury. Delayed bleeding occurs suddenly when the patient is believed to have recovered.

Operative and autopsy findings have shown that as a result of pleural trauma a hematoma may be formed under the splenic capsule or in the pocket around the spleen. In a case reported by Moestlin a perisplenic hematoma containing many liters of blood which was formed following the contusion of a maternal spleen pushed the diaphragm up causing respiratory embarrassment forced the colon down and pushed the stomach to one side and the spleen against the posterior abdominal wall.

well defined connective tissue cells both fixed and wandering. These cells which are derived from the fixed connective tissue elements are the great phagocytes of the body and can be vitally stained—an evidence of the storage capacity of the cell of this system.

In his discussion of the splenomegalies Whipple considers only those that are associated with a secondary anemia from the standpoint of disturbed physiology of the reticulo endothelial system. The *c* are grouped as Banti's disease, hæmolytic jaundice and thrombocytic purpura, hæmorrhagica Gaucher's disease and splenic anemia. Leukæmia, pernicious anemia and polycythæmia are excluded as these conditions are related primarily to dyscrasias of the blood forming organs.

In Banti's disease, some irritant stimulates the reticulo-endothelial apparatus of the spleen to an abnormal destruction of red cells. According to the most generally accepted theory, the enlargement of the spleen is a response to a chronic inflammatory process and the anemia is the result of over activity of the blood destroying splenocytes. The beneficial effects of splenectomy in the early stages of the disease favor the view that the primary cause is in the spleen.

It is in hæmolytic jaundice that the phagocytosis of red blood cells passes from the physiological to the extremely pathological. Whether the agent causing the increased fragility of the red cells is situated in the spleen or elsewhere in the reticulo endothelial apparatus is still unknown. However, the fact that with the removal of the spleen pathological cell destruction ceases speaks for the hypothesis that the red cell destruction is confined to the spleen.

In purpura hæmorrhagica the relation of the spleen as an etiological factor is not so well understood but the fact that many of the cases of chronic thrombocytopenic purpura remain cured for periods of five years or longer after splenectomy argues for a causative agent in the spleen. However, not all cases are cured by operation. As the platelets are few or absent and as the reticulo endothelial cell gets rid of jaded or excessive blood platelets it appears that some part of the reticulo endothelial system is over active. Whether the reticulo endothelial cells of the spleen alone or of the entire system are involved is still a debated question. Undoubtedly the spleen destroys the platelets as there is a sharp rise in the platelet count after splenectomy. However, the rest of the reticulo-endothelial system is also involved. The efficiency of splenectomy depends upon whether most of the pathological change is still confined to the spleen.

In Gaucher's disease the characteristic cell (according to Aschoff and Mandlebaum) are derived from the reticulo endothelial cells of the organs in which they occur. It appears that in this disease some irritant gives rise to abnormal activity of the reticulo-endothelial cells in the spleen, the

liver, the lymph nodes and the bone marrow. These cells proliferate mostly in the splenic sinuses.

In the splenic anemias a close resemblance is noted to Banti's disease and the indication for splenectomy and the prognosis following splenectomy are the same as in Banti's disease.

In conclusion Whipple emphasizes that in studying these diseases we must think of them from the point of view of the reticulo endothelial system. The derangement of the function of the spleen in these clinical entities seems to be due to derangement of the reticulo endothelial cells and the extent to which the derangement of the reticulo endothelial cells is limited to the spleen determines apparently the efficacy of splenectomy.

HERMAN H. HILBE, M.D.

Brzowski, J. A. Preliminary Ligation of the Splenic Artery as a Method of Avoiding Loss of Blood in Splenectomy. (Ia elmina Latur d r Art r le al el e Methode zur Vermeidung des Blutverlustes bei Milzextirpation). *Arch. f. Ch.* 96:1, 335.

In the removal of the malan spleen the author obtained a bloodless field by separate ligation of the artery and vein of the vascular bundle entering the splenic hilus. When the abdominal cavity was opened, isolated ligation of the splenic artery was done and after the volume of the spleen had decreased markedly the vein was ligated and the spleen then removed. In this manner about 10 per cent of the entire quantity of blood can be saved.

The author believes that the method described should be used in all cases of splenectomy when possible. He used it first on October 10, 1923 and only later heard a similar recommendation by Lotsch made before the German Surgical Congress, Bock (2).

## MISCELLANEOUS

Gerulanos, M. Chronic Fistula Formation in the Abdomen. (Chronische Fistelbildung im Abdomen). *Zentralbl. f. Ch.* 196:11, 936.

This is a discussion of the pathologico-anatomical findings in fistula formation following simple palliative operations in suppurative condition of the abdomen.

The author reports the case of a 25-year-old woman with a fistula in the ileocecal region which had been discharging pus for eighteen months. The primary condition was diagnosed as acute suppurative appendicitis and the first operation consisted in the removal of the appendix and incision and drainage of an ovarian cyst. The operation for closure of the fistula which was performed through a median incision revealed a finger-shaped structure about the thickness of the little finger and 8 cm. long which practically free from adhesions extended transversely through the abdominal cavity from the region of the fistulous opening toward the lesser pelvis and there terminated in an adnexal tumor.

and marked tenderness to pressure over the epigastric region.

Operation performed immediately disclosed about 2 liters of blood in the abdominal cavity. On the convexity of the spleen there was a hole about the size of a 3 mark piece from which the splenic pulp protruded. The edges of the hole were ragged. The spleen was removed. The peritoneal cavity showed no changes.

The patient at first gave no history of trauma, but on subsequent questioning by his wife he stated that twelve days previously a fellow workman had struck him on the left side with a shovel. The convex surface of the shovel was directed toward his left arm and the patient had the feeling that the projecting iron handle of the shovel was driven into the skin. He experienced no other inconvenience from the blow but ever and remained at work. Twelve days later when he was pulling on his socks in dressing he felt a sudden severe abdominal pain which progressed to the development of the syndrome described on his admission to the hospital.

To obtain compensation for the injury it was necessary to prove the relationship between the delayed hemorrhage and the accident which had occurred twelve days previously. This was accomplished by the interrogation of witnesses and microscopic examination of the extirpated spleen.

The spleen measured 11 by 8.5 cm. On its convexity there were dried blood clots and a crater like rent with irregular borders. Separated from the latter and about a finger's breadth from the upper pole there was an irregular tear. The splenic capsule showed a tumor like swelling due to bluish red masses of clotted blood which could be seen through it.

In the region of the crater like depression on the cut surface exhibited an irregular mass of blood clot extending almost to the hilus. In the neighboring tissues there were other blood clots, the whole mass making up about a fourth of the substance of the organ. Between the masses of clotted blood were bridging like strands of intact splenic tissue.

Examination of the hemorrhagic areas in their relation to the neighboring tissues showed areas with no changes of nature and other areas in which new vessels were sprouting from the splenic tissue into the blotted masses of blood, viz organization processes. At least several days are necessary for the process of organization to progress so far as this. Therefore the rupture of the spleen with the hemorrhage which necessitated splenectomy could be ascribed to the injury sustained twelve days previously.

At the time of the injury bleeding occurred within the capsule. This remained latent and even began to organize but when the capsule was reached after an interval of twelve days severe hemorrhage occurred. Extirpation of the spleen has resulted in no change in the blood picture. The capsule offers powerful resistance to the spread of hemorrhage. It is only when the internal pressure overcomes the

capsular elasticity that the capsule is lifted up and a blood cyst which bursts with the slightest trauma is formed. Spread of the hemorrhage may be hindered also by the formation of adhesions to the surrounding structures but when hemorrhage is suspected operation must not be delayed too long.

ZIPPERS (2)

Whipple A O The Relation of the Reticulo Endothelial System to the Splenomegalia Associated with Non Specific or Secondary Anemia. *Annals of the New York Academy of Medicine* 1921 12: 800

In discussing the histology of the spleen the author emphasizes particularly the reticulum or delicate supporting framework of the splenic pulp. The fine fibril of this structure are lined with flat endothelial cells and form a part of the reticulo endothelial system which is found also in the lymph nodes, bone marrow and liver.

The physiology of the spleen is summarized according to Krumhaar as follows:

1. The mammalian spleen is not necessary for the maintenance of normal existence and has many of its functions with other members of the hemolymphopoietic system but under certain stresses its presence may be the deciding factor between life and death. Its functions are indicated largely by its structure, its reticulo endothelial content and the changes produced in other organs by its removal.

2. The spleen is a blood reservoir.

3. It is concerned directly in blood cell formation during fetal life and has an indirect influence on blood formation throughout most of adult life.

4. It is intimately concerned in the process of red blood cell destruction. It has the ability to remove blood cells and bacteria from the blood. It has to do with iron metabolism in the body. It prepares bilirubin pigment for the liver.

5. It seems to be an important site of antibody formation. It plays a part in resistance.

6. Its relation to metabolism is less manifest.

7. The liver, lymph nodes (lymphoid tissue generally) and bone marrow are closely allied members of the hemolymphopoietic system that they share certain of its functions normally and quickly take over the remaining share after its extirpation.

Pease and Krumhaar state that after splenectomy in dogs three prominent phenomena are observed: (1) anemia of the secondary type which may be somewhat severe in a month and then be followed by repair; (2) increased resistance of the red blood cells; and (3) a lessened tendency toward hemoglobinuria and jaundice.

The reticulo endothelial system is distributed throughout the spleen, the liver, the lymphatic system, the bone marrow, and the vascular network of the thymus and mesenteries. In close association with the minute blood vessels and blood spaces of the connective tissue framework of these organs and structures there are found certain

# GYNECOLOGY

## UTERUS

Hurd R A Results of Operations for Retroversion  
 sion A J Obst & G, c 1917 xi 74

A study was made of the results of operations for retroversion performed at the Woman's Hospital New York City. The observations made in the course of this study may be summarized as follows:

1 Retroversion is most often complicated by an accompanying inflammation of the cervix or adnexa with resulting peritoneal adhesions which restrict or even completely inhibit the mobility of the corpus.

2 In very few or no instances can the operator be accused of unwarranted surgery in this group of cases. Even in the cases of patients whose uteri were freely mobile a definite complaint was present and in over 90 per cent of these distinct improvement followed correction of the malposition.

3 The percentage of all retroversions which produce symptoms cannot be determined from a group such as this for all these women except possibly a few who came for sterility presented definite complaints before operation.

4 Abdominal pain of various types and degrees appears to be a more constant symptom in retroversion than backache although the latter also appears in a large proportion of cases.

5 Retroversion more than almost any other gynecological lesion is an affection of the child-bearing period.

6 Only 4 per cent of a large series of patients with uteri on complaint of sterility and more than half of these had also inflammation of the adnexa. Pregnancy followed operation roughly once in four cases.

7 The series shows 96 per cent of anatomical cures throughout the period of observation which averaged twenty months.

8 Of the operations frequently done for round ligament suspension Bissell's operation was followed by the lowest and Gilliam's by the highest percentage of recurrences.

9 Plication alone of the uterosacral ligaments was distinctly unsuccessful in the few cases in which it was used although it is probably a valuable adjunct in other suspension methods.

10 The end results of retroversion operations considered symptomatically appear to depend largely upon the symptoms which the lesion produces. One may expect a higher proportion of cures when the patient seeks treatment for pain, backache, or other discomfort than when she applies for relief of sterility or some disorder of menstruation.

11 That the reconstructed supporting ligaments of the uterus can undergo evolution during pregnancy

is demonstrated by the occurrence of few spontaneous abortions in women who have undergone operation.

12 A full term pregnancy was followed by a recurrence of retroversion in a previously suspended uterus in about one in seven cases.

C. L. CORNELL M.D.

Wiemann O Experiences with the Alexander Adams Operation in 1005 Cases at the Marburg Clinic (Erfahrungen mit der Alexander Adams Operation an 1005 Fällen der Marburger Klinik).  
 Ztschr. f. Geburtsh. u. Gyn. 1917, 11, 249.

During the years 1911 to 1914 the Alexander Adams operation was performed in 1005 cases at the Marburg Clinic. There were 503 cases of retroflexion, 336 of retroflexion with descent or prolapse, and 164 of descent or prolapse alone. In 547 cases the Alexander Adams operation alone was performed.

The peritoneum is opened as part of the technique at this clinic.

Certain disturbances were noted during the period of healing. In twenty-nine cases there were signs of inflammation in the operative wound due apparently to some fault of the catgut. In fourteen instances the temperature reached 100.4 degrees F (38 C). Postoperative hemorrhage occurred in five cases, pneumonia in eight, cystitis in ten, and an extravasation or exudate posterior to the uterus in three cases. There were six deaths: two from peritonitis (one following curettage) and one death each from sepsis, lung embolus, bronchopneumonia, and perforated uterus with hematoma in the right parametrium and intoxication. In the case of perforation of the uterus, curettage had been done, twilight sleep being induced with paravertebral anesthesia and ether.

The results of the follow-up in 457 cases are grouped according to subjective complaints and anatomical findings. In 59 per cent there were no complaints and the anatomical findings were good; no complaints in 72.7 per cent; good anatomical result in 81.8 per cent, but there was a continuation of symptoms and recurrence in 2.3 per cent.

Of a total of 602 patients, 193 became pregnant after the operation of these 123 were watched carefully during the delivery. There were recurrences in 7.2 per cent, half of which occurred during the first years after operation. In the cases operated upon during the war, recurrences were twice as frequent as in the post-war cases. As cause for this are suggested undernourishment, relaxation of tissues and ligaments, increased work, the impossibility of taking proper care immediately after the operation, and also the fact that during the war

embedded in adhesions. It was possible to pass a suture and from the fistulous opening into the adnexal tumor.

On microscopic examination the wall of the fistulous cord was found to be formed by firm connective tissue with fibers running in a circular direction which surrounded a central canal lined by inflammatory granulations. The inflammatory processes predominated toward the center of the canal and the connective tissue became more dense toward the periphery. The exterior surface was therefore smooth. At several points on the surface there were flattened cells with regular long nuclei of an endothelial type.

It was apparent that from the original adhesions there was formed under the influence of continued suppuration a tube-shaped structure which led the pus to the external surface. The chronic inflammatory processes which lead to the formation of such structures are well known. As a rule however operation is performed at an earlier stage when the inflammatory processes are still active and the adhe-

sions around the fistulous canal are firm and extensive and the operative liberation of the adhesions destroys the canal. This explains why there are no reports of similar structures in the literature. Another reason is that when the suppuration is of short duration such a canal may not be found.

In the case of a 25 year-old woman with tuberculous adnexitis an abscess was opened at operation. Eight months later radical removal of the adnexa and a fistulous tract was done. The fistulous canal was firmly adherent to loops of intestines and to the omentum. In this case also microscopic examination showed the formation of a connective tissue wall with circular fibers which was lined by granulations.

In the discussion of this report von Reber reported on the treatment of epithelium lined fistulae. He stated that he had closed a pancreatic fistula resulting from a pancreatic cyst by destroying its epithelium with one radium radiaton. Before the introduction of the radium tube the fistula was dilated with a laminaria tent. Heymerl (2)



tion only. Incomplete removal of the pelvic contents is not a satisfactory method of treatment  
E. L. CORN, LL. M. D.

### MISCELLANEOUS

Norris C. C. and Vogt M. E. Radiation in Gynecology *S. & C. Co. Inc.* 1927 v. 315

Among the benign gynecological conditions treated by irradiation the authors mention one case of granuloma inguinale as cured.

Uncomplicated endocervicitis was treated by the insertion of 300 mgm hrs of radium into the cervical canal with relief from leucorrhoea in 75 per cent of cases and improvement in the remainder.

Selected cases of benign uterine hemorrhage and myomata responded ideally to irradiation. Bleeding was checked in 95 per cent of the cases, the usual dose being 1200 mc hrs. In young women not more than 300 mc hrs were given and this dose was repeated without untoward effects. Fifty per cent of such cases were cured and 30 per cent more benefited.

Malignancy about the external genitalia yield to irradiation only when diagnosed early. The treatment most beneficial is the implantation about  $\frac{1}{2}$  in apart of bare glass seeds containing from 0.6 to 1.0 mc each. Carcinoma of the vulva is so treated. The inguinal glands are excised, the seeds implanted and deep X-ray therapy given. Primary carcinoma of the vagina or recurrence after hysterectomy is best treated with bare glass seed of the strength indicated implanted throughout the base and edges of the lesion.

The authors classified carcinoma of the cervix according to the grouping of Schmitz. In Group I the results of surgery and irradiation were equally good, whereas in all others irradiation was definitely superior, not only as a palliative but a curative measure. The more embryonal the lesion, the more readily it responded to irradiation, the greater the malignancy the greater the tendency to early metastasis. In Type I 2400 mgm hrs were given

intracervically. Type II being treated in practically the same manner. The carcinoma healed locally in 70 per cent of the cases. In Group IV only the exceptional cases received any irradiation. In carcinoma of the cervical stump 50 to 100 mgm of radium were inserted into the canal for 18 to 24 hours. Deep X-ray therapy was employed in all cases of cervical carcinomata when there was any hope of ultimate cure.

Carcinoma of the body of the uterus was treated by panhysterectomy and bilateral salpingo-oophorectomy unless operation was contra-indicated. In the latter instance 2500 mc hrs were given and the dose repeated in two weeks. The Clark test was made every three weeks thereafter.

Carcinoma of the ovary is essentially surgical. Deep X-ray therapy was employed routinely after operation. Usually the reaction to a dosage of 100 mgm hrs of radium was not severe and subsided upon the removal of the radium. Nausea, vomiting, pelvic pain and slight elevation of temperature were not uncommon.

Recto- and vesico-vaginal fistulae rarely occur; indeed irradiation tends to prevent them. Post-mortem findings revealed no death following the treatment of benign conditions.

In carcinoma of the urethra the meatus is frequently destroyed, the vesicovaginal septum and not infrequently the urethral orifices being involved. Hydro-ureter, hydronephrosis and extensive intrapentoneal extensions are not uncommon in healed cases in which the cervix, vagina and parametrium are involved.

An extensive melanotic tumor of the vulva with widespread metastases is described. The authors also describe a case of extensive pelvic infection treated by heavy irradiation in which no signs of a flare-up followed treatment. They question whether in the many cases treated by pelvic irradiation there may not be some with infection which do not show signs of exacerbation.

The authors' technique is accurately described  
A. JAMES LARSEN, M.D.



cent of the cardiac cases while their incidence in pregnant women without cardiac conditions was 6 per cent. Of 100 patients followed up from two months to three years after delivery seven were dead at the end of three months and seventy two (66 per cent) were found free from cardiac symptoms when seen at the follow up clinic.

E. L. CORNELL M.D.

Nickel A. C. and Mussey R. D. The Relation of Focal Infection to Abortion. *Med J & R* 97 447

Abortion has been produced experimentally in guinea pigs by the intravenous injection of freshly isolated strains of green producing streptococci obtained from foci of infection in patients who had aborted. When grown on artificial medium for a week these strains lost their specificity. Control strains of green producing streptococci which were morphologically indistinguishable from the strains producing abortion and obtained from patients who had never aborted but who suffered from arthritis did not produce abortion in guinea pigs when injected in the same manner and in equivalent doses.

The authors report three illustrative cases in which oral foci of infection were considered of etiological significance.

Bea F. H. and Cleland J. B. Gas Infection of the Uterus with Jaundice Following Abortion. *M J A* 114 97179

The authors report a typical case of bacillus welchii infection originating in the uterus following a presumably induced abortion. The patient was a woman 42 years of age. On October 6 1926 when she first applied for treatment she stated that her last menses had begun fourteen days previously and were scanty. The uterus was found enlarged the os patulous and the cervix soft but a positive diagnosis of pregnancy could not be made especially as the uterus was subinvolved from the patient's confinement five years previously. The heart was seen angiogram.

A sedative mixture rest in bed and return for re-examination were recommended. On October 20 the findings were unchanged. The patient was then not seen again until 6.30 a.m. October 20 when he was obviously very ill with an accelerated pulse subnormal temperature and sighing breathing. The abdomen was found extremely tender but not rigid. The previous day she had felt ill and was unable to eat. During the night she experienced severe abdominal pain associated with vomiting and a profuse watery diarrhoea.

Despite restorative measures she grew worse. Medical diagnosis of the condition as probably a bacillus welchii infection. At 9 p.m. the radial pulse was imperceptible the temperature subnormal and the skin cold and clammy. Morphine alleviated the pain. At daybreak a gradually extending deep cyanosis in the intensely jaundiced skin was noticed. The extremities and hips were almost black. All

nourishment was vomited. Mental alertness was retained. The patient died at 8 a.m. October 1 1926.

When the peritoneum was opened less than four hours after death there was no definite escape of gas. The cavity contained considerable blood stained fluid. The omentum and small intestines were discolored. The uterus which was about 4 in long and 3 in wide was crepitant to the touch greatly discolored and mottled and showed erosion around the os. No perforation was found. Placental remains and blood clot were adherent to the fundus. The adnexa were intensely congested and almost black from extravasated blood. The infiltration extended into the ligaments and adjacent pelvic walls. The liver presented a pasty appearance gas bubbles were not recognizable.

Cultures made from swabbings taken from the uterus liver gall bladder spleen and heart showed large Gram positive gas forming anaerobic bacilli. In subcultures the bacillus welchii was identified. Microscopic examination revealed considerable leucocytic infiltration of the uterine mucosa. The liver showed little change despite the presence of bacillus welchii at autopsy.

PETER GRAFFAGNINO M.D.

Magarey R. Cleland J. B. and Sleeman J. G. Gas Infections of the Uterus with Jaundice Due to Bacillus Welchii Following Abortions. *M J A* 114 1927 1787

Since 1920 thirteen cases of abortion in most of which there was marked jaundice were admitted to the Adelaide Hospital. These cases were rapidly fatal. In two the diagnosis of infection by bacillus welchii was made positively.

The infection is of faecal origin and is introduced when criminal abortion is done. In one case the bacillus welchii was recovered from the blood stream.

The authors advise the use of bacillus welchii antitoxin early and in large amounts.

A. H. GLADDE M.D.

Wilhelm T. Heus During Pregnancy (Ueber Schlangenschiffsleus). *Z. Geburtsh. Gyn.* 1927 1 v 274

Cases of ileus in pregnancy may be divided into those in which the uterus alone is responsible those in which the condition is caused by adhesions of the uterus to other organs and those in which it occurs as the result of a predisposition to it. A case belonging to the second group was admitted to the Offenburger hospital with a diagnosis of appendicitis in pregnancy. The patient was a 36-year-old para v with a history of sudden severe pain in the right side followed by two bowel movements but no vomiting. Her last menstruation had occurred five months previously. Examination revealed severe pain on pressure and definite board-like rigidity of the abdominal wall on the right side extending nearly up to the umbilicus.

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Castano C A Three Cases of Pregnancy After Radiation for Uterine Bleeding Due to Ovarian Dysfunction (Tr s cas d g ses e aprè cu e thérapie d ns d s hémor r gies o n p thiq s métropathic lém r gic e) *Gynéc t obst* 1927 xv 96

Castano reports three cases of pregnancy after radium irradiation for so called metropathic hæmorrhage due possibly to persistence of the corpus luteum

The first patient was a woman 27 years of age who gave a history of dysmenorrhœa and metrorrhagia for periods of fifteen twenty and thirty days These symptoms had persisted for about ten years During that time the patient had consulted a number of physicians and had had various types of treatment including four curettages all without results

Radium was applied in February and April 1922 Menstruation then became regular painless and of four days duration In September 1923 the patient became pregnant and in May 1924 was delivered by dilatation and forceps of a 4 000-gm normal male child There was no postpartum hæmorrhage When the patient was seen again six months after delivery both she and the child were doing well

The second patient was a woman 26 years of age who stated that for seven years her menstrual periods had continued for from fifteen to twenty days Gynecological examination was negative On May 22 1923 radium treatment was given This was followed by rather abundant hæmorrhage which lasted about twelve days A second application of radium made on June 2 1923 was followed by amenorrhœa for two months Ovarian substance and thirty intramuscular injections of enosol were given Menstruation then recurred for two days each month

In December 1923 the patient became pregnant At examination in June 1924 a six months pregnancy was diagnosed During the same month the patient had a profuse hæmorrhage and was taken to a maternity hospital The fetus was found to be dead and the uterus in a state of contraction An attempt was made to dilate the uterus with a bag but as dilatation was slow a vaginal cesarean section was performed When the isthmus of the cervical portion of the uterus was sectioned a true sclerosis was found As the section did not give enough dilatation the fetus was finally extracted manually by morcellation

The author attributes the death of the fetus in this case to syphilis in the mother which had re-

ceived only insufficient treatment The sclerosis of the cervix he attributes to the radium irradiation

The third case was that a woman 32 years of age who had had three normal children and when first seen by the author gave a history of headach general malaise and painless metrorrhagia lasting ten days Vaginal examination was negative A diagnosis of syphilis was made and gray oil and thyroiodine were prescribed In 1918 thyroiodine and lipiodol were administered In June 1918 anti syphilis treatment was given In 1920 as the hæmorrhages continued two applications of radium were given Menstruation then became regular and of the five day type The patient became pregnant in January 1921 and was delivered at term of a normal child After delivery she abandoned the anti syphilis treatment In August she was jaundiced and had a fever of 41 degrees C with chills In September 1924 she became pregnant again In March she was delivered of a dead fetus

S LVATORE DI PALMA MD

Corwin J Herrick W W Valenti M and Wills J M Pregnancy and Heart Disease *J Obst & Gynec* 9 7 1 67

The difficulties in the diagnosis of cardiac lesions are increased by pregnancy In the cases of pregnant women the physician must be especially alert to differentiate the real from the spurious The signs of mitral stenosis are particularly variable and are most often missed or misinterpreted They are frequently present at one examination but absent at another

While mitral stenosis is theoretically the most serious heart lesion complicating pregnancy experience shows that in reality aortic insufficiency is attended by the greatest risk Syphilis a rube or myocarditis does not seem to make the immediate maternal prognosis unfavorable women with these conditions go through labor well

In a case of poor compensation no attempt should be made to induce labor Medical measures should always be tried Cardiac decompensation plus forcible delivery usually means death

The second stage of labor must be made as short and easy as possible As a rule delivery is effected satisfactorily by the induction of ethyl anesthesia which the patient with cardiac condition tolerates well and the application of low forceps When difficulties are presented cesarean section under general or spinal anesthesia may be advisable

The mortality in 103 cases followed in the cardiac clinic was 5.8 per cent and in ninety three others 6.4 per cent

Hypertension albuminuria œdema and other so called toxic symptoms were noted in 19.4 per

When cesarean section becomes necessary the risks in future pregnancies will be greatly lessened if the operation is properly performed.

When firm union is believed to have occurred in the uterine wall a repeated cesarean section should not be performed in subsequent pregnancies unless there is a definite indication for it. If repeated section is decided upon it should be performed before the end of pregnancy.

In the discussion of this report FLINT stated that the way to avoid doing a repeated cesarean section is to avoid doing the first one. When the operation is unavoidable care must be taken to preserve asepsis and not to tie the uterine sutures so firmly as to produce necrosis of the tissues. In Flint's opinion many of the scars become infected from accidental puncture of the decidua by the sutures. Section should always be done early in labor before the patient becomes exhausted. No attempt should be made to operate rapidly.

POLAK believes that there is a place for cesarean section in certain cases of placenta previa and that a large number of women subjected to the operation for this condition will go through subsequent labors without complications if they are watched in the hospital.

DAVIS stated that he has no fear of repeated cesarean sections. One of his patients had seven and another had six. In his opinion it is very risky to attempt to deliver await delivery or allow the patient to go on in labor when she has had a previous cesarean section. He believes it is important for the surgeon who is to care for the case to be in attendance and that when a trial labor is allowed the delivery should be terminated artificially as soon as full dilatation is reached.

E. L. CORNELL M.D.

## LABOR AND ITS COMPLICATIONS

McNeile L. G. and Vruwink J. Rectal Analgesia in Obstetrics. *Calif. & West Med.* 1927, vi 64.

Inhalation anesthetics do not satisfactorily reduce pain in normal labor. Moreover they are dangerous to the mother and child if they are given over a long period of time and their administration requires an expert anesthetist and elaborate apparatus. Nitrous oxide has proved better than ether or chloroform.

Morphine-scopolamine is no longer generally used. Morphine-magnesium sulphate given hypodermically with the rectal instillation of an ether oil combination lessens the pain in over 75 per cent of the cases without danger to the mother or child.

In the Gwathmey method a low soap-suds enema is given at the beginning of labor and repeated before the initial hypodermic injection if more than eight hours elapse after the first enema. The morphine-magnesium sulphate is given when the cervix is dilated about 3 or 4 cm. and uterine contractions occur every three to five minutes. It

is injected preferably in the buttocks. A hypodermic injection of magnesium sulphate alone is given one half hour later to prolong the effect of the morphine.

If marked relief does not follow the ether instillation is given after twenty minutes and the patient is told to retain it as long as possible. If the labor is not too far advanced this instillation may be repeated if it is expelled or if its effects wear off.

The authors use nitrous oxide during an episiotomy and as the head passes over the perineum and ether for the repair of lacerations.

Pantopon and scopolamine have no advantages over morphine-magnesium sulphate.

Diallylbarbituric acid used as a substitute for morphine-magnesium sulphate has been found to relieve the pain of labor, strengthen the contractions, decrease the interval between the contractions and promote relaxation of the cervix with absolutely no effect upon the baby.

MAGNUS P. URNES M.D.

Phaneuf L. E. Cesarean Section Followed by Temporary Exteriorization of the Uterus the Portes Operation. *S. & Gynec. & Obs.* 1927, xiv 788.

Since cesarean section followed by temporary exteriorization of the uterus was first done by Portes in Paris and reported March 10, 1924, a number of such operations have been performed in France.

The Portes operation is one of necessity not of choice. It should be limited to cases in which infection is severe and abdominal delivery is indicated. Portes, adopting the advance in surgery represented by the two stage operation in cases of poor risks gave to the obstetrical patient the benefit of the greater safety it offered. The first stage of the Portes operation is rapid, resulting in but little shock. In the second stage the uterus and adnexa are replaced in the pelvic cavity or if episiotomy is uncontrollable hysterectomy is performed extra-abdominally according to the Porro technique.

At first the obstetrical future of these patients was questioned but it has been proved that after this operation a woman may conceive and carry the pregnancy to term. Couvelaire as early as February 1925 knew of thirty-two cases in which the operation had been performed and the uterus returned to the cavity with but two deaths. In the cases of all of the women who recovered the menstrual function returned. On July 5, 1926, Couvelaire reported the case of a woman previously delivered by the Portes operation who successfully carried a pregnancy to term and was delivered by Portes by a classical cesarean section.

In reviewing the reported cases it was found that in every instance in which the uterus was replaced the patient recovered. The uterus was left extruding for from fifteen to eighty-six days.

The advantages of the Portes operation are:  
1. A mortality rate which is very low, especially since these are cases of frank infection.

At operation performed immediately a gridiron incision was made. Purulent exudate and gangrene of the tip of the appendix were found. There was no perforation. The appendix was found to be as thick as the little finger. Appendectomy was done and the abdominal wall closed around a small drain.

The operation was followed by suppuration in the abdominal wall. On the twelfth postoperative day a six months fetus was expelled with separation of the placenta. Eleven days later when the patient was feeling quite well she suddenly had another attack of pain with gaseous distention of the abdomen and hiccoughing. A diagnosis of ileus was made.

Operation revealed adhesion of the omentum to the right side of the uterus which was about the size of a fist and adherent to the abdominal wall and linking of the ileum about 50 cm above the ileocecal valve. The knicked portion of the ileum was also adherent to the uterus. Blunt dissection of the adhesions was done and the greatly distended small intestine was punctured. The bleeding area left on the uterus after removal of the adhesions was tamponed and drainage was established through the pouch of Douglas.

The patient was discharged from the hospital five weeks after the second operation.

The ileus was caused by traction on the adherent small intestine by the uterus which was undergoing involution down into the pelvis.

The author believes that in cases of ileus in pregnancy abdominal caesarean section should be done before operation on the intestine.

II H. SCHMIDT (G)

Lazard E. M. Is Magnesium Sulphate Intravenously Warranted in Eclampsia? Clinical Results vs Experimental Evidence. *A. J. Obst. & Gynec.* 1927, 1: 720.

Chemical and pathological findings indicate that in therapeutic doses magnesium sulphate administered intravenously does not exert any deleterious action on the blood or produce any pathological change in the liver. In active eclampsia it has a beneficial effect on the blood by reducing the toxæmia. Its dehydrating effect on the brain is demonstrated by the pathological report in this article.

No claim has been made that magnesium sulphate is in any sense a specific or that it gives a successful result in all cases. In many cases especially those of the nephritic type the pregnancy must be terminated. The author believes however that careful observation and the intravenous administration of magnesium sulphate will reduce the incidence of eclampsia further and reduce the mortality of the condition to less than 10 per cent in fact a reduction of the mortality to less than 5 per cent is not too much to expect.

The effects of magnesium sulphate as determined by Lazard in blood chemistry tests do not bear out

the findings of Standler. In one case coming to autopsy no fat was found in the liver.

E. L. CORNELL MD

Cleland J. B. Partial Rupture of the Uterus During Pregnancy with Fatal Intraperitoneal Hemorrhage. *Med. J. Australia* 1927, 1: 790.

Cleland reports a case of partial rupture of the uterus during pregnancy in which the serous and outer coats were injured and a fatal hemorrhage from a subserous vein resulted. The case was complicated further by hydramnios and partial placenta previa.

There was no indication of disease of the uterine wall or infection of the mucosa. Cleland attributes the rupture to overdistention and a sudden attack of vomiting.

The diagnosis depends on recognition of the acute condition in the abdomen. A. H. GLADDE MD

Rice F. W. An Analysis of the Results in 139 Pregnancies Subsequent to Cesarean Section in Ninety Six Patients. *Am. J. Obst. & Gynec.* 1927, 11: 591.

Of ninety-six women with 139 pregnancies following caesarean section seventy-six had ninety-two repeated sections, twenty were delivered vaginally at term in thirty pregnancies, four had two deliveries, one had six deliveries, two had premature deliveries besides repeated sections, seven had spontaneous miscarriages and two had induced abortions.

At the time of the repeated section the condition of the scar and the presence of adhesions were noted. There was only one case of rupture, that of a patient who had an infection following the primary section. In three cases small areas of thinning were noted. These were cases in which infection was present at the time of the previous delivery.

Of the twenty primary sections done in the cases of women who later were delivered vaginally thirty times six were done on women who had had previous vaginal deliveries. In three cases the primary section was done because of placenta previa, in one case because of malpresentation, in one because of a large baby and in one because of contracted pelvis.

In the cases of twenty-nine patients delivered vaginally there was one stillbirth and no maternal mortality. In the cases of patients who had repeated sections there were three stillbirths, an infantile mortality of 3.4 per cent. There were three maternal deaths in the eighty-seven cases operated upon. The first death was due to peritonitis following rupture of the abdominal wound, the second to pneumonia followed by empyema one month after the section, and the third to rupture of the uterus and shock.

In Rice's opinion the number of caesarean sections could be greatly reduced by more frequent observation of women during pregnancy and more frequent trial labor in doubtful cases of moderately contracted pelvis.

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

Spencer H R Adenoma of the Suprarenal  
*1 Ch Path & Lab Med 1926 1 691*

In the course of routine examination of the viscera at autopsy solitary more or less circumscribed soft yellowish or reddish tumor masses are occasionally found in or arising from the cortex of the suprarenal.

The circumscription of these masses together with their atypical and adenomatous structure serves to indicate their neoplastic character and to place them in the group of benign glandular tumors or adenomata. Embryologically the cortex of the gland is mesodermal in origin arising as a series of buds from the coelomic epithelium covering the medial upper surface of the cephalic third of the Wolffian body.

Kellynach found three cases of suprarenal adenoma in 500 autopsies and Spencer reports three cases found in 100 autopsies at the University of Maryland Hospital.

In a number of cases of cortical suprarenal tumors fecundity in sexual development or the acquisition of opposite secondary sex characteristics has been reported. William J C 50 MD

Smith R M Bilateral Melanotic Growth of the Suprarenal Gland  
*MD J Histol 1917 1 683*

A man of 64 years entered the hospital with a history of severe abdominal pain in the region of the umbilicus persistent vomiting and a loss of 4 lb in weight in the period of a month. A definite diagnosis was never made. After a month's observation the patient died.

When the abdomen was opened at autopsy a large quantity of very purulent and malodorous fluid was found. The all of the upper half of the small intestine as studded with numerous black masses varying in size from 0.6 to 3.75 cm. The mesenteric glands were enlarged and showed a bluish black discoloration. Through one of the large infiltrated areas in the bowel wall a small perforation had occurred but the rest of these areas were quite firm. There were two intussusceptions in the small bowel. The stomach duodenum ileum and large intestine appeared normal. The liver was not enlarged but was slightly tougher than usual. When it was sectioned no secondary deposits could be found. The spleen was enlarged and bluish black. On section in the suprarenal region attached to the kidney but quite separate from it was a bluish black soft tumor 4 in in diameter. This was readily dissected out. On section it was found to be full of black disintegrated material. No secondary deposits were found. The capsules peeled off readily.

The lungs were quite crepitant and the heart was normal neither showed any metastases. The mediastinal glands brain and skull were also apparently normal. The eye chambers were not opened as there had been no eye symptoms.

Duhig who reported on the sections concluded that the growth in the kidney region was a melanotic sarcoma probably originating in the adrenal. He stated that the lymph glands from the mesentery contained abundant secondary deposits. The lymphoid tissue of the bowel and spleen exhibited a remarkable change there were few sarcoma cells but the original invaders had disintegrated leaving huge deposit of melanin in the invaded organs.

This case is of particular interest because of (1) the rarity of melanotic malignant growths particularly in the adrenal (2) the bilateral occurrence of the tumor (3) the peculiar distribution of the secondary growths in the upper half of the small intestine and in the mesenteric glands corresponding to that part (4) the absence of metastases in other organs particularly the kidneys liver lungs and brain (5) the enlargement and microscopic alteration of the spleen and (6) the perforation through one of the masses in the intestine which caused peritonitis and thereby hastened death.

WILLIAM J C 50 MD

Brausch W F and Cathcart E P Clinical Data and Prognosis in Cases of Chronic Pyelonephritis  
*J Am Med Ass 1917 xxxvii 63*

As yet no specific cure has been discovered for chronic pyelonephritis. A brief clinical review was made of 2040 patients observed at the Mayo Clinic in the period from January 1 1910 to January 1 1926. Two hundred and fifty-one of the group who had been treated for from ten to fifteen years were studied.

Attention is called to the difficulties occasionally observed in differentiating the cystitis resulting from chronic pyelonephritis and that accompanying renal tuberculosis. A stone forming tendency which is apparently secondary to chronic renal infection is sometimes observed. Such a condition was noted in twenty-eight cases. The question occasionally arises whether it is advisable to attempt surgical removal of the small stones when they cause little trouble and whether their removal will materially influence the course of the chronic pyelonephritis.

The deformity of the outline of the pelvis and ureter in chronic pyelonephritis is usually typical being characterized by marked dilatation of the ureter with slight if any dilatation of the pelvis and usually no dilatation in the calyces. The typical ureter is dilated irregularly throughout and presents the appearance of multiple areas of constriction. In

- 2 A simple and easily carried out technique
- 3 Minimal shock and risk
- 4 Conservation of the uterus and adnexa with preservation of the function of reproduction
- 5 Minimal peritoneal reaction after replacement of the pelvic organs in the abdominal cavity
- 6 The possibility when sepsis is uncontrollable of removing the uterus extra abdominally at a time when the patient is out of shock

PETER GRAFFAGNINO M D

Oberling C and Jung G Paraganglioma of the Adrenal with Arterial Hypertension Comments on Obstetrical Shock (Paragangliome de la urinaire ec hypertension arterielle a popo d ch obstetrical) *Bull Soc d obst et de gy t de Pa* 1927 x 279

The authors report a case in which death occurred two hours after delivery following signs of shock

The blood pressure previous to term had been as high as 250/190 and was never lower than 100/120. The urine contained albumin and casts and there was moderate oedema. Autopsy revealed marked dilatation of the heart and a large paraganglioma of the right adrenal.

Striking characteristics of this tumor were the specialization and apparent functional capacity of the tumor cells.

From a study of the literature it appears that large paragangliomata of the adrenal are nearly always associated with arterial hypertension. The authors believe that this is an association of cause and effect. In the case reported there were no other vascular lesions.

The authors report this case as additional evidence that the lesions constant in essential hypertension are not the result of the hypertension.

GOODRICH C SCHULTZ M D



autogenous and in the others they were prepared from stock col' on bacilli.

Probably one third of these patients will recover another third will be markedly benefited and the remaining third will not be helped by the treatment. This conclusion has been largely borne out by a survey of the cases reviewed.

Although it might be inferred that the disease is probably self limiting in many cases nevertheless the various forms of treatment have undoubtedly succeeded in increasing the percentage of patients cured and improved. In reviewing the types of treatment employed it is difficult to draw any exact conclusions since in most cases various methods of treatment were combined. The percentage of cures following several methods of treatment was apparently about the same. It is evident however that patients in whom foci of infection were removed fared better as a group than those in which this was not done.

When the infection has permeated the entire renal substance and the cicatricial changes in the ureteral and pelvic walls are advanced it is apparent that the difficulties of recovery are greatly increased. It seems logical to assume that urinary infection would be best eradicated if in the early stages all foci of infection were removed if the infection and the result in cicatricial changes in the ureter and pelvis were treated by means of lavage and possibly by dilatation and if fluid and urinary antiseptics were used even though no internal medication is as yet known which offers permanent recovery from chronic renal infection. The treatment must be persistent in order to eliminate the infection as completely as possible.

Wollstein M. Renal Neoplasm in Young Child  
den A. H. P. H. Lab. Med. 1927 11

Wollstein reports eighteen primary renal neoplasms in children between the ages of 3 1/2 months and 6 years. In thirteen cases the tumor was an adenosarcoma in three a leiomyosarcoma in one a rhabdomyosarcoma and in one a spindle cell sarcoma.

Embryonal renal neoplasms occurring in young children are a heterogeneous group. They are closely related but not identical histologically or histogenetically.

In all of the cases reported the kidney was sharply limited from the neoplasm by a capsule of compressed renal tissue. While the growth may invade the kidney substance the fully developed kidney elements take no part in the new growth which is entirely embryonal in type.

The more solid tumors are more easily removed than the others because they remain within their unbroken capsule.

Four of the patients who survived operation ten months or longer had the firm type of tumor. One patient survived to adult life and one is well six years after the operation.

WILLIAM J. CARSON, M.D.

Nicholson D. Fever with Renal Carcinoma. A. Ch. Path & Lab. Med. 1927 11 393.

Nicholson reports a case of almost continuous fever (100 to 104 degrees F) with intermittent abdominal pain and general weakness in a woman aged 38 years which remained undiagnosed for eleven months in spite of careful examination. Roentgen ray examination then showed a widening of the lung hilum. Seven months later (eleven months after the onset of the illness) annular opaque areas appeared in the lung and a diagnosis of lung tumor probably Hodgkin's disease was made. Fever had then been present almost continuously for twelve months.

Autopsy showed a renal carcinoma of the lower pole of the right kidney with metastases in the left suprarenal and pleen liver and lungs.

On microscopic examination some parts of the tumor were found to be made up of small cells which tended to form alveoli whereas other parts were made up of large clear cells which formed papillae or irregular elongated acini some of which showed hyaline degeneration.

WILLIAM J. CARSON, M.D.

Jeanbrau E. Cystic Dilatation of the Ureter Strangulated in the Meatus Following Labor Resection of the Prolapsed Tissue. Cu. e. (D) la tati n k stuque de lu tère ét an le u meat nna e ch z ne accouché section d la poche prolapsée guérison. J. d. mtd et ch r. 1927 xxi 23.

A woman 32 years of age consulted Jeanbrau in 1925 because of pain at the end of urination which radiated from the region over the bladder to the region of the right kidney. There was no history of nocturia.

Examination revealed pyuria. The kidneys were not palpable or tender. The bladder capacity was 600 cc. Tenderness was found over the pelvic ureteral point of Bazy on the right side. Cultures of the urine yielded colon bacilli. Cystoscopic examination revealed a spherical bulging the size of a cherry at the point where the right ureter should have been. This was believed to be a cystic dilatation of the ureter. The opening could not be seen.

The patient was given urinary antiseptics and was not seen again by Jeanbrau until August 1, 1926 when he was called because of a tumor which was prolapsed from the urinary meatus and was increasing in size from hour to hour.

During the interval between the two consultations the patient had become pregnant but despite the pyuria she had gotten along very well. In June she began to have some dysuria. By June 20 this had become quite severe but was thought to be due to the engagement of the fetal head. At one time catheterization was necessary. Labor which began July 19 and was completed July 21 was associated with considerable difficulty due to marked edema of the vulva and vagina and prolapse of the bladder through the urethra.

most instances however the irregular dilatation is to be regarded as the result of chronic inflammation and cicatrization of the ureteral wall rather than of obstruction alone. The greatest dilatation is usually observed in the upper third of the ureter. It frequently stops abruptly at the ureteropelvic junction leaving the pelvis and calyces intact. It might be inferred that there is some anatomical factor in the nerve supply or musculature at the ureteropelvic junction which limits the dilatation entirely to the ureter.

With the ureteropelvic junction dilated to the extent of the ureter below the pelvis may be but slightly dilated and the calyces normal. The pelvis and calyces are seldom dilated as in Intermittent hydronephrosis. Frequently the calyces show cicatricial changes with resulting reduction in their size and irregularity of their outline. Occasionally there is evidence of necrosis in the outline of the calyces which may be confused with renal tuberculosis. Although dilatation in the ureter is largely the result of inflammatory changes in the walls of the ureter and pelvis ureterectasis extending uniformly upward from the ureterovesical junction may result from an area of constriction. Even though the catheter meets no obstruction it is conceivable that the mucosa may have been so oedematous at this point as temporarily to occlude the lumen of the ureter and induce ureterectasis. If the cicatricial tissue is so dense that dilatation is difficult the advisability of cutting the intramural portion of the ureter might be considered.

Gross hematuria accompanying chronic pyelonephritis usually originates in the areas of eroded cicatricial mucosa or in granulomata in the renal pelvis or ureter. As a rule the bleeding is moderate but it may become serious. Although it can be controlled by lavage of the pelvis with solutions of silver nitrate nephrectomy may be necessary in rare instances.

The renal function usually remains normal even after many years of infection. If there is a reduction in function it occurs either after the infection has existed for many years or as a sequel to some acute complication. Because of the dilatation of the ureter the excretion of the dye may be delayed and give an erroneous impression of function. A more accurate estimate of function can usually be made by retention tests and in the routine examination of chronic pyelonephritis the estimation of the blood urea is relied upon largely. The clinical symptoms caused by renal insufficiency with chronic pyelonephritis are those that usually accompany interstitial nephritis. An increase in the blood pressure, retinal changes or reduction in the urinary output such as occur with glomerular nephritis are usually not observed except as terminal complications. When there is renal insufficiency the patient's condition may remain stationary for many years under a proper regimen such as rest, external application of heat, thorough elimination, regulation of habits of living and restriction of protein.

It is generally recognized that there must be a primary focus of infection in most cases of chronic pyelonephritis and in every case roentgenograms of the teeth should be made. The tonsils should be investigated, the secretion from the prostate and cervix examined and intestinal stasis excluded.

For the treatment of chronic pyelonephritis various procedures have been advocated but not one has proved specifically successful. Among the procedures are the removal of foci of infection, lavage of the renal pelvis and bladder, dilatation of the ureter, internal antiseptic medication, intravenous medication and the use of vaccines. All of these measures have proved palliative rather than curative.

Lavage of the renal pelvis and bladder with antiseptic solutions is justified as it undoubtedly results in temporary improvement.

When cicatricial changes in the ureter interfere with renal drainage dilatation of the ureter by means of bulbous sounds is indicated. During the last few years the authors have been dilating the ureter as part of the routine treatment of chronic pyelonephritis but so far as they are able to ascertain there has been no greater degree of immediate improvement in this group than in the others. The question may well be raised whether actual stricture of the ureter can be permanently relieved by this method.

Although it is possible that internal urinary antiseptics may exert some influence on acute and subacute pyelonephritis the authors state that it is difficult to see how any drug can reach the infected interstitial tissues in chronic pyelonephritis. Among the various forms of internal medication that have been used in recent years in the treatment of infections of the urinary tract are methenamine, acriflavine and hexylresorcinol. Methenamine has proved to be of great value in the treatment of chronic pyelonephritis. Hexylresorcinol has recently been recommended by optimistic observers as efficacious in overcoming chronic pyelonephritis. This drug was given in a series of forty cases of chronic pyelonephritis. While the symptoms decreased and the amount of pus in the urine was reduced in several cases in no case was the urine found negative either microscopically or by culture.

Of the drugs recommended for intravenous use to overcome urinary infection mercuriochrome, a soluble acridine, arsphenamine and methenamine have been employed most widely. These are of undoubted value in the treatment of acute and subacute pyelonephritis but have not been effective in eradicating chronic infections.

From several years use of vaccines the authors have gained the impression that vaccines have little or no effect. They have therefore largely discarded them. However, while the proportion of cures following their use is no greater than the average, a number of patients reported that their symptoms disappeared within a short time following the vaccine treatment. In most cases the vaccines were

used it in seven cases of urinary incontinence. Stoekel employed it with success in a case in which his own operation failed. Suture of the cervix of the uterus between the two leaves of the levatores ani and suspension of the uterus are other possibilities.

Operations for retention of urine not due to mechanical obstruction are of two types: those in which muscles are dilated or sectioned and those in which the bladder is either plicated or the rectum is sutured to it. Forceful dilatation of the sphincter is sometimes of value. Sphincterotomy of the posterior lip of the neck of the bladder may be performed through a median cystostomy wound or through the urethra. The urethra may be opened up through a transverse perineal incision and sectioned. The method most favored at the present time is the use of the urethral cystoscope and a diathermy sound.

Trigonotomy may occasionally be indicated for floating trigone or large interureteral bar. Plication of the bladder wall to lessen the capacity of the bladder is to be credited to Rochet who has done it three times with satisfactory results. The approach may be made retroperitoneally by the hypogastric route or through the perineum. The former route is the more often possible. A fold is made in the wall of the bladder.

Suture of the rectum into the bladder is another procedure to be credited to Rochet. Rochet has done it three times. Through a Pfannenstiel incision the strips are loosened from the rectum muscles, the pubic attachments of the strips are severed and the strip brought down the sides of the bladder to the neck as low as possible and somewhat posterior and sutured. When this is done the bladder is suspended in a living muscular hammock. The fundus is not sutured to the muscles.

Very few operations have been performed on the nerves to the bladder and no influence on the motor mechanism has been noted following such surgery.

MICHAEL L. MASON, M.D.

## GENITAL ORGANS

Thomson Walker, Sir J. Fallus of Prostatectomy, 1917, 1909.

Now that the immediate mortality following prostatectomy has been reduced by standardization of the operative technique and proper preoperative and postoperative care, the author believes the surgeon's next effort should be directed toward prevention of the distressing sequelae which often make the patient as uncomfortable as before the operation. Among these conditions are the various complicating infections of cystitis, vesiculitis, epilymitis, persistent urinary fistula and urinary obstructions due to failure to remove the original cause of obstruction at the time of operation or to the recurrence of the obstruction.

In the author's opinion the chief causes of these sequelae are sepsis and obstruction. Patients who

come to the surgeon with marked infection of the urinary tract must have this sepsis cleared up before operation. Badly infected bladders should be washed out through a suprapubic tube and a urethral catheter. For the avoidance of sepsis after operation it is necessary to remove all tags, shred and partly detached nodules of prostate gland capsule, urethra and mucosa which might form sloughs and centers of sepsis. It is important to provide adequate drainage for the prostatic cavity; this is best done by means of a urethral catheter. Daily irrigations through the urethral catheter and up through the suprapubic tube are necessary to prevent infection. The author does not practice routine vasectomy to prevent epididymitis as he believes it unnecessary if careful attention is paid to the avoidance of sepsis.

Obstructions following prostatectomy are of two main types: (1) fibrous contractures or valvular folds at the internal meatus or in the prostatic bed and (2) new growths in the wall of the prostatic bed, either a recurrence of simple enlargement of the prostate or a malignant growth. In cases of the first type the obstruction may vary from slight difficulty in urination to complete retention and may be due to a variety of folds and flaps of mucous membrane or nodules of prostatic tissue either overhanging the internal meatus or situated in its immediate neighborhood. In some cases the author found the internal meatus practically obliterated by a hard ring of fibrous contraction. In mild cases of such contractures the treatment consists of dilatation or the punch operation. In more severe cases the suprapubic scar must be dissected out, the bladder mobilized and freely opened and the obstruction widely removed.

HENRY L. SANFORD, M.D.

## MISCELLANEOUS

Marselos, V. A New Method for Testing the Cure of Gonorrhoea (Nouveau traitement et dépression de la blennorrhagie). *J. d. Méd. et Ch.* 1927, 37.

As a test for the cure of gonorrhoea the author proposes the combined use of diathermy locally and the intradermal injection of the patient's own blood. His technique is as follows:

1. In the morning an injection of 1 c.c.m. of blood is made at two points on the dorsum of the forearm at some distance from each other.

2. From ten to twelve hours after the injection from twenty-five to thirty minutes of diathermy treatment is given at as high a temperature as can be tolerated.

3. Coitus and indulgence in wine or beer.

4. The next day diathermy.

5. On the third day the injection and diathermy treatment are repeated.

6. On the fourth day a further diathermy treatment is given.

7. On the fifth day the injection and diathermy are repeated.

From July 21 to 28 the puerperium was fairly normal. Fever and urinary retention then developed and the patient's family physician noted a small mass at the meatus. When this mass was pushed back with a sound a large quantity of urine was expelled. Two days later the mass reappeared. It was then the size of a nut and was not completely reducible. During the next twenty-four hours it grew to the size of a pear. It was at this time that the author was summoned.

Examination revealed a mass the size of a turkey egg protruding from the urethral orifice. It was of a black and purple color and seemed to be filled with fluid. On vaginal examination a cord running downward and backward from the tumor was felt. This was thought to be the uterus. The right kidney and ureter were tender. A diagnosis of prolapsed and strangulated ureterocele was made.

Because of the intense pain the decision was made to resect the mass at the patient's home rather than to take the patient to a hospital where an intravesical resection of the ureterocele could be done. Under spinal anesthesia and after careful clamping of the external genitalia the mass was punctured with a needle. A quantity of bloody urine was evacuated. The sac which was seen to be gangrenous was then cut off at the urinary orifice and the stump replaced in the bladder. There was no hemorrhage. Vesical lavage was done with silver nitrate and a retention catheter was introduced.

After the operation there was a moderate hematoma for from ten days to two weeks and a pyelitis developed on the left side. The latter cleared up under treatment with the usual urinary antiseptics. Four weeks after the operation the patient was able to walk about.

A cystoscopic examination in October 1926 showed the right ureter projecting into the bladder as a small stump resembling in appearance a miniature uterine cervix. This corresponded to the pedicle of the prolapsed ureterocele. The patient would not permit the author to make a pyelogram.

Jeanbrau states that when a cystic dilatation is recognized at the time of cystoscopy it should be treated at once through the operating cystoscope. The condition is due to a congenital narrowing of the urethral orifice. In a case of strangulated prolapse the best procedure is resection through a suprapubic incision with careful suture of the vesical and ureteral mucosa. Despite the good result obtained in the case here reported Jeanbrau does not recommend the procedure used.

MICHAEL L. MASON, M.D.

### BLADDER URETHRA AND PENIS

Richer. *Surgery of the Vesical Muscles* (Chirurgie du muscle vésical). *Journal de Médecine Interne*, 1927, 2, 112.

This article is a review of the surgical procedures applicable to the musculature of the urinary bladder.

The author first discusses the morphology of the bladder muscles and calls attention to the fact that the old concept of a rather intimate relationship of the three coats of the bladder, the trigone and the sphincters, has been superseded by the view that the trigone is independent of the corpus and only morphologically but also embryologically.

The sphincter of the bladder seems to be made up of two arcs of fibers, one coming from the body of the bladder and the other from the trigone. The trigone is a definite entity in continuity with the longitudinal fibers of the uterus and superimposed upon the muscular coat of the bladder.

The innervation of the trigone and the corpus is not the same. It seems probable that the opening of the urethral orifice during micturition is not inhibitory but active depending on contraction of the trigone muscles.

Incontinence is more common in females than in males resulting frequently from obstetrical trauma. It has been treated by a number of different operative procedures. Urethrotomies of various types have been employed. The injection of paraffin into the tissues under the urethra may give a good result but as the effect is only temporary this procedure is not to be recommended. Anatomical situation of the torn sphincter is almost impossible. Plication of the urethra longitudinally or transversely is sometimes successful. Gersuny has tried twisting the urethra and Albarran has combined with plication and elevation of the urethra.

Muscular plasties have been devised to replace the torn sphincter by the use of the pyramidalis rectus, abdominis levator ani, gluteus maximus and other muscles. One of the most satisfactory procedures of this type is the classical Goebell-Stoeckel operation in which the pyramidalis muscles or if these are not present two strips of the recti are brought down and sutured under the urethra. Frangenheim's operation in which only a single muscle strip is brought down and sutured to the pubic ramus under the urethra is also employed.

The Goebell-Stoeckel operation has been done in numerous cases. The author has collected the reports of forty-seven in 8 per cent of which it resulted in a cure. In six of these cases it failed and in one was followed by death. The indications were injury to the sphincter following a difficult labor (most cases) or injury to the urethra during the extraction of a stone, the removal of a cystic tumor from the anterior wall of the vagina, epispadias, pyelitis and Lyle's disease. The technique of the operation is described in detail and the forty-seven cases are reviewed.

The use of the levator ani, gluteus maximus and other muscles has also given good results. Some surgeons have employed fascial lata and the round ligament but these have not produced satisfactory results as muscle.

Supporting the neck of the bladder by turning the uterus under it as in the Schauta-Wertheim operation is a very valuable procedure. Wertheim

# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS ETC

**Brockman F P** Some Observations on the Bone Changes in Renal Rickets *B I J S* 1927 x 634

In renal rickets the changes occur principally in the region of the growth disk. The epiphysis is not markedly changed from the normal. The diaphysis is slightly widened but not to the extent seen in rickets. The diaphysis in connection with the growth disk is not cupped in the same way as in rickets but there is an irregular area of bone formation. The non-ossified area between the epiphysis and diaphysis shows a marked increase in depth. There is no evident osteoporosis. The shafts of the long bones are not affected as in rickets there being no increase of the normal curves with supporting struts of periosteal bone.

In examination of the kidneys in one of the cases reviewed congenital cystic disease was found. Histological examination revealed chronic interstitial nephritis. Examination of the affected bones showed loosened displaced epiphyses. The bones were very soft being easily split with a scalpel. The periosteum was not thickened. The cortex was thin and between the epiphysis and diaphysis there was an area of hemorrhage. The fat content of the medulla was greatly increased.

In renal rickets the shaft of the bones are straight and deformities are due not to an increase of the normal curves such as occurs in rickets but to separation and displacement of the epiphyses by muscle pull which is seen most commonly at the lower ends of the femur tibia radius and ulna.

Primarily because of the danger of uræmia but also because of the tendency of the deformities to recur it is not advisable to correct these deformities by osteotomy.

The absorbed bone becomes replaced by fibrous tissue.

DANIEL H LEVINTHAL M D

**Brome R S** Infectious Osteomyelitis Differentiated by Diagnosis *Am J R* 1927 x 153

In pyogenic osteomyelitis with the usual pathological manifestations a diagnosis can usually be made from the roentgenogram.

When the condition enters the destructive stage followed by the proliferative stage and especially when it is accompanied by large and well-defined sequestra it probably will not be confused with syphilis or tuberculosis. Syphilis is usually formative and tuberculosis largely destructive and associated with bone atrophy. The chronic stage of osteomyelitis when the picture is that of a formative process and there is no evidence of sequestration

or involucrum formation is likely to be confused with syphilis and the differentiation depends largely upon the history and the laboratory findings. Tuberculosis of the shaft although rare will probably be differentiated only by other means than the roentgen ray alone.

Ewing's tumor or endothelioma of bone is most likely to be confused with osteomyelitis as the usual criteria of malignancy are not to be seen (Codman). Dependence must be placed chiefly upon the history. The early stage of periosteal sarcoma cannot always be differentiated because occasionally pyrexia pain and swelling may simulate the signs and symptoms of acute osteomyelitis.

The occurrence of perpendicular striations is not a pathognomonic sign of malignancy as such striations have been noted also in acute osteomyelitis and syphilis.

Of the dystrophies infantile scurvy will cause no difficulty if its early signs are sought for in the roentgenogram. Bone cysts will be differentiated with a fair degree of accuracy if the signs of pyogenic inflammatory change are recognized. In cases of osteomyelitis with a hemorrhagic content in the rarefied area (abscess) of bone with no definite sequestrum due to attenuated bacterial infection the diagnosis will sometimes be impossible and can be made only after operation by other means than the roentgen ray.

Generalized fibrocystic osteitis should not be so difficult to differentiate from osteomyelitis but is more difficult to differentiate from syphilis.

CHARLES H HEACOCK M D

**Bird C E** Sarcoma Complicating Paget's Disease of the Bone. Report of Nine Cases Five with Pathological Verification *Arch Surg* 1927 xiv 187

Paget expressed the opinion that there is an intimate relationship between the disease which has come to bear his name and the formation of malignant tumors. From the files of the Peter Bent Brigham Hospital the Boston City Hospital the Massachusetts General Hospital and the Huntington Memorial Hospital Boston the author has collected five cases of Paget's disease in which as verified by pathological examination a sarcoma arose in bone involved by osteitis deformans. In all Bird reports nine cases.

The incidence of sarcoma in Paget's disease is about 1 in 10.

The malignant tumors in the cases reported were all fibrosarcomata with varying amounts of bone production and foreign body or tumor giant-cell reaction. Eight of the patients were males. The sarcoma arose in bone which was markedly affected

8 On the morning of the sixth day before operation the prostate seminal vesicles and Cowper's glands are massaged

9 The urine and urethral strippings are studied by culture of the sediment and sperm and by stains

Marselos distinguishes the following three types of reaction as indicated by the cellular content and the presence or absence of gonococci in the discharge before and after the test

| Gonococci     |      | Polymorphonuclear leucocytes | Lymphocytes | Squamous cells |
|---------------|------|------------------------------|-------------|----------------|
| <b>Type 1</b> |      |                              |             |                |
| Before test   | 0    | Rare                         | Few         | Present        |
| After test    | 0    | Rare                         | Few         | Present        |
| <b>Type 2</b> |      |                              |             |                |
| Before test   | 0    | Rare                         | Few         | Present        |
| After test    | Few  | Good number                  | Some        | Present        |
| <b>Test 3</b> |      |                              |             |                |
| Before test   | Few  | Rare                         | Few         | Present        |
| After test    | Many | Many                         | Good number | Present        |

Very little general reaction was noted. One patient was slightly indisposed. Three patients became pale and dizzy after the injection. Two became pale, complained of nausea and perspired freely. A slight increase in the number of leucocytes was noted after the injection.

The method was checked against numerous commonly used tests—simple examination of the dis-

charge. Motz method, prostatic massage, sperm culture, Clarkson's method, Mueller's method, and Roucayrol's method. Of these methods none but that of Roucayrol gave as high a percentage of positive results.

MICHAEL L. MASOV, M.D.

Nisio, G. Intermittent Haematuria of Tonsillar Origin (Eilat, 1927, 11, 241)

Nisio reports the case of a woman of 26 years who gave a history of frequent attacks of tonsillitis in childhood. During her first pregnancy albumin was found in the urine and increased progressively until the end of the pregnancy. Delivery was normal, however, and after delivery the albumin gradually disappeared. Since then the patient has had several attacks of nephritis associated with attacks of tonsillitis.

The author concludes that there are forms of nephritis which follow pharyngeal infections such as angina and tonsillitis and occur sometimes even when the pharyngeal inflammation is not noticed. The hemorrhage is out of proportion to the other signs of the kidney lesion, such as albumin and casts in the urine. There is a tendency for an attack of nephritis to occur with each exacerbation of the pharyngeal infection. As the haematuria is the chief sign of the nephritis, the condition may be mistaken for tuberculosis of the kidney. That the nephritis is caused by the throat affection is shown by recovery after removal of the tonsils.

AUDREY G. MORGAN, M.D.

The end result was full extension three quarters normal flexion and full abduction. The little finger was somewhat shorter than normal. Microscopic examination showed the tumor to be an osteo chondroma.

DANIEL H. LEVINTHAL, M.D.

# Lance and Sorrel. A Study of Local and General

Platyspondylitis (Étude sur les platyspondylites platy po dyl s loc i les platyspo dyl es p 6 é al i (en) B il i m é Soc at de ch 19 7 li 32

According to Putti and Perussia congenital flattening of the vertebral bodies (platyspondylitis) exists only in association with malformation of the posterior arch (spina bifida occulta or complete). Lance states that in his opinion platyspondylitis is more common than is generally believed and he has found it associated with congenital division of the vertebral bodies (somatoschisis) without any other malformation of the vertebral bodies and generalized without any other spinal anomaly. He reports briefly eight cases.

Case 1 was that of a 15 year old girl with dorsal scoliosis and generalized congenital ichthyosis. The anteroposterior roentgenogram of the spine showed somatoschisis of the sixth and tenth dorsal vertebrae and the lateral roentgenogram showed platyspondylitis of the fifth dorsal vertebra.

Case 2 was that of a 6-year old boy with an acute lumbosacral deviation and a costal gibbus on the left side. The lateral roentgenogram showed flattening of the vertebral bodies of the ninth and twelfth dorsal vertebrae and hypertrophy of the tenth dorsal vertebra. The anteroposterior view showed somatoschisis of the ninth and twelfth dorsal vertebrae and fusion of the ninth tenth eleventh and twelfth ribs on the right side.

The third case was that of a girl 11 years of age with generalized bony dystrophies and multiple malformations from repeated fractures congenital luxation of both radius and congenital scoliosis. The anteroposterior roentgenogram showed eleven ribs on the left side and eleven on the right a questionable rudimentary rib on the ninth vertebra and platyspondylitis of the fourth sixth seventh and ninth vertebral bodies.

Case 4 was that of an 11 year-old girl who had had scoliosis with a triple curvature since infancy. The anteroposterior roentgenogram revealed platyspondylitis of the ninth tenth and eleventh dorsal vertebrae with no other malformation.

Case 5 was that of a man aged 51 years who had suffered from fatigue of the back since the age of 25. When he stood up for any length of time it was necessary for him to lean against a support. He wore a rigid belt to support the back. The left apophysis showed marked congenital elevation. The roentgenogram revealed platyspondylitis of the sixth eighth and ninth dorsal vertebrae.

In Case 6 that of a man aged 38 years a diagnosis of Pott's disease of the fifth lumbar vertebra had been made. An abscess of the left flank developed. The anteroposterior roentgenogram of the spine re-

vealed scoliosis toward the right side thirteen ribs on both sides fourteen dorsal vertebrae union of the sixth and seventh vertebrae and lack of a rib between the seventh and eighth vertebrae. The lateral roentgenogram showed marked dorsal kyphosis of the seventh to ninth vertebrae with platyspondylitis of the eighth dorsal vertebra.

Case 7 was that of a 26 months old boy of slow development with open fontanelles congenital luxation of both hips bilateral congenital club foot and a dorolumbar gibbus. The roentgenogram showed generalized platyspondylitis without other spinal anomaly. The child was made to walk in a light celluloid corset.

Case 8 was that of a girl 3 years old who had had a round back for a year a pronounced dorsal kyphosis and a lumbar lordosis with prominence of the abdomen. The spine had an exaggerated S shape. When the patient was lying down or suspended the curvature partially disappeared. The roentgenogram revealed a general platyspondylitis. Because of the curvatures the child walked with difficulty. She wore a removable corset.

Sorrel reports several cases of platyspondylitis which had been diagnosed as Pott's disease. One of them was treated for the latter condition for many years.

WALTER C. BURKET, M.D.

# Simpson W. M. and McIntosh G. A. Actinomycosis of the Vertebrae (Actinomycotic Pott's Disease). Report of Four Cases. A. Ch. St. g 27 xi 1 66

The authors state that actinomycosis of bone is not so rare as is generally believed. They report four cases of vertebral actinomycosis with the autopsy findings made in the Pathological Laboratory of the University of Michigan. All four cases came to autopsy with a clinical diagnosis of tuberculosis of the spine. In two of the cases the primary focus of the infection was in the lungs and in the two others apparently in the region of the appendix. The bone infection occurred as the result of direct extension.

Actinomycosis of the spine produces cortical erosion of the vertebrae with a vertebral phlegmon. It does not cause the angular deformity characteristic of Pott's disease but its relation to tuberculosis is manifested in the development of purulent tracts and sinuses notably the psoas abscess. Hence it must be differentiated from tuberculosis. The ray fungus should be looked for by the surgeon who first diagnoses the actinomycotic abscess.

The radical surgical excision of all involved tissue offers the best hope of cure.

ROBERT C. LONGGREN, M.D.

# Davis G. G. Os Vesalianum Pedis. Am. J. R. nt 1 1 9 7 x 55

The os vesalianum pedis is the proximal and external part of the tuberosity of the fifth metatarsal. It appears when the lateral protuberance of the fifth metatarsal develops as a special center of

13. Jagers & de Vries. Of the nine patients eight are known to be dead and one cannot be traced.

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14. Jagers & de Vries. Central Sarcoma of Bone. Is There a Central Fibroma or Fibrosarcoma and If We Can It Be Differentiated from Osteitis Fibrosa? *J. Surg. & Gynec.* 1917 11 117

Woodward states that when in a pathological bone growth in the roentgen gram shows a definite shell the bone destruction is all within the shell there is evidence in the roentgen plate of a pulsation of any tumor formation outside the shell and a rapid rate of growth reveals within the shell a mass of fibrous tissue which is difficult to distinguish from sarcoma in the gross and in sections it is quite safe to conclude that the condition is osteitis fibrosa. Conservative measures are therefore to be avoided. If there are numerous minute cysts the bone is at an end if the patient is under 30 years of age this still more positive conclusion is that the bone is at an end.

The predominant central lesions of bone are osteosarcoma and the giant-cell tumor. As it is increasing of frequency comes the metastatic tumor. Chondrosarcoma and sarcoma develop in the bone or the other elements of the bone. The metastatic tumor is a primary tumor with evidence of other bone involvement is rare.

The author reports 14 cases of bone tumor. In the first 12 cases of central malignant bone cyst was made and an amputation was done. In 1926 ten years after the amputation the patient was well and the majority of the pathologists who studied the specimen agreed that the lesion was osteitis fibrosa.

The second case was one of malignant osteosarcoma with metastases in the skull and a fibrosarcoma. The patient was a man 7 years of age. Amputation was done. The patient died three years later but the cause of death could not be learned.

In the third case the roentgen gram suggests a central tumor of the lower extremity and the shift of the femur and amputation was done. The roentgen picture suggested fibrosarcoma fibrosarcoma and osteitis fibrosa. The patient was 41 years of age after the operation.

The fourth case was diagnosed as osteitis fibrosa. Amputation and bone transplantation were done. In 1926 seven years after the operation the patient was well. *Reprint 1 Pt. 1 11 D*

15. Lucca E. & F. Preliminary Studies of the Function of the Regeneration of Muscle Fascia (Recherche préliminaire sur la régénération du muscle et de la fascia). *Ch. d'exp. & méd.* 1917 21 202

The experimental studies here reported were performed on dogs. A segment about 1 cm square was removed from the fascia and the wound then closed. The animals were killed after ten, twenty, thirty, sixty, ninety, and one hundred and twenty days.

It was found that at the differentiation of fascia into resting fascia and myoneurotic fascia is based not only on embryological and morphological factors but also on functional factors. There is a great difference in the function of the fascia of different muscles. In the cases of some muscles—the gastrocnemius for example—it was impossible to demonstrate any appreciable influence of the fascia on the muscle function, whereas in the cases of other muscles the fascia had an aponeurotic character and was of great static and dynamic importance.

In the investigation of the function of regeneration took place rapidly by means of an analyzer that created little or no interference with the normal fascia. In the myoneurotic fascia the regenerative process was brought about by a very peculiar fibrous structure, formation of connective tissue which was at first very to a very gradually all of the morphological and structural characteristics of normal fascia.

The regenerative process in the myoneurotic fascia is controlled by the function of the muscle. When muscle function is preserved or exercises the function tends to take on its original structure quickly in order to fulfill its function, but when the muscle loses function the fascia substitutes a fascial replacement having an exuberant mass of undifferentiated atypical tissue. The difference in behavior of the elastic fibers in the fibers of the fascia of function is muscle and of paralyze muscle is an obvious demonstration of proof of the functional activity of the aponeurotic fascia.

The experiment is possible only of a case of traumatic hernia has not been sufficient to prove this conclusion. The pathogenesis of which is still obscure. Ferrari is of the opinion that the production of hernia is necessary for them. He also states that.

The aponeurotic fascia is intimately connected with muscle function. If the function is normal it is complete. If the function is abnormal it is defective. The function is the height of the contraction and consequently of the work performed by the muscle. The functional variation between the muscle and the aponeurotic fascia is due to the fact that the fascia is the reason of its elasticity and the points of partial insertion which it presents to the muscle fibers helps to maintain in a constant muscular tension. *Ch. d'exp. & méd.*

16. Fowler A. A Case Showing Anatomical and Functional Reproduction of a Metacarpal by All-natural Bone. *B. J. S.* 1917 5 9

The author reports a case of a tumor of the fifth metacarpal which was excised completely because it was suspected to be a sarcoma. A tibial graft rounded at the distal end was fitted snugly into the unresected carpus at the proximal end and fixed by muscle suture. After an exposure of six months was begun early. The patient died of the graft before it was fully formed and the distal half of the graft was the base of the proximal phalanx.



The end result was full extension, three quarters normal flexion and full at luction. The little finger was somewhat shorter than normal. Microscopic examination showed the tumor to be an osteochondroma.

DANIEL H LEVINTHAL M D

**Lance and Sorrel. A Study of Local and General Platyspondylitis** (*Etude sur les pl<sup>at</sup>yspondylites*). *Bull et mém Soc et d ch* 1927 1: 132

According to Lutti and Perussia congenital flattening of the vertebral bodies (platyspondylitis) exists only in association with malformation of the posterior arch (spina bifida occulta or complete). Lance states that in his opinion platyspondylitis is more common than is generally believed and he has found it associated with congenital division of the vertebral bodies (omatochisis) without any other malformation of the vertebral bodies and generalized without any other spinal anomaly. He reports briefly eight cases.

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Case 4 was that of an 11 year-old girl who had had scoliosis with a triple curvature since infancy. The anteroposterior roentgenogram revealed platyspondylitis of the ninth, tenth and eleventh dorsal vertebrae with all other malformations.

Case 5 was that of a man aged 51 years who had suffered from rigidity of the back since the age of 2. When he took up any length of time it was necessary for him to lean against a support. He wore a rigid belt to support the back. The left leg showed marked congenital elevation. The roentgenogram revealed platyspondylitis of the ninth, tenth and eleventh dorsal vertebrae.

In Case 6 that a man aged 55 years admitted to a fracture of the fifth lumbar vertebra, had been in an abduct position of the left flank developed. The anteroposterior roentgenogram of the spine re-

vealed scoliosis toward the right side, thirteen ribs on both sides, fourteen dorsal vertebrae, union of the sixth and seventh vertebrae and lack of a rib between the seventh and eighth vertebrae. The lateral roentgenogram showed marked dorsal kyphosis of the seventh to ninth vertebrae with platyspondylitis of the eighth dorsal vertebra.

Case 7 was that of a 6 months-old boy of slow development with open fontanelle, congenital luxation of both hips, bilateral congenital club-foot and a dolumbar gibbus. The roentgenogram showed generalized platyspondylitis without other spinal anomaly. The child was made to walk in a light celluloid corset.

Case 8 was that of a girl 3 years old who had had a round back for a year and pronounced dorsal kyphosis and a lumbar lordosis with prominence of the abdomen. The spine had an exaggerated S shape. When the patient was lying down or suspended the curvature partially disappeared. The roentgenogram revealed a general platyspondylitis. Because of the curvatures the child walked with difficulties. She wore a removable corset.

Sorrel reports several cases of platyspondylitis which had been diagnosed as Pott's disease. One of them was treated for the latter condition for many years.

WALTER C BURDET M D

**Simpson W M and McIntosh C A. Actinomycosis of the Vertebrae** (*Actinomycotic Pott's Disease*). *Report of Four Cases*. *J S R* 92: 21, 166

The authors state that actinomycosis of bone is not so rare as is generally believed. They report four cases of vertebral actinomycosis with the autopsy findings made in the Pathological Laboratory of the University of Michigan. All four cases came to autopsy with a clinical diagnosis of tuberculosis of the spine. In two of the cases the primary focus of the infection was in the lungs and in the two others apparently in the region of the appendix. The bone infection occurred as the result of direct extension.

Actinomycosis of the spine produces cortical erosion of the vertebrae with a vertebral phlegmon. It does not cause the angular deformity characteristic of Pott's disease but its relation to tuberculosis is manifested in the development of purulent tracts and sinuses notably the psoas abscess. Hence it must be differentiated from tuberculosis. The ray fungus should be looked for by the surgeon who first finds the actinomycotic abscess.

The radical surgical excision of all involved tissue offers the best hope of cure.

R BERT C LOZAN M D

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ROBERT C. LOVERGAY, M.D.

**Bloodgood J. C.** Central Sarcoma of Bone. Is There a Central Fibroma or Fibrosarcoma and How Can It Be Differentiated from Osteitis Fibrosa? *J. Bone & Joint Surg.* 1927 ix 217

Bloodgood states that when in a pathological bone condition the roentgenogram shows a definite bone shell the bone destruction is all within the shell there is no evidence in the roentgen picture or on palpation of any tumor formation outside the bone shell and exploratory incision reveals within the bone shell a mass of fibrous tissue which is difficult to distinguish from sarcoma. In the gross and frozen section it is quite safe to conclude that the condition is osteitis fibrosa. Conservative measures are therefore in order. If there are numerous minute cysts or one large cyst and if the patient is under 50 years of age this is still more positive evidence that the lesion is benign.

The predominant central lesions of bone are osteitis fibrosa and the giant-cell tumor. Next in decreasing order of frequency comes the metastatic tumor. Chondroma, myxoma, and sarcoma developing in one or the other are not common tumors. The multiple myeloma without evidence of other bone involvement is rare.

The author reports four cases of bone tumor. In the first a diagnosis of central malignant bone cyst was made and an amputation was done. In 1926 ten years after the amputation the patient was well and the majority of the pathologists who studied the specimen agreed that the lesion was osteitis fibrosa.

The second case was one of malignant osteogenic sarcoma with destruction in the shaft and a line of demarcation. The patient was a man 77 years of age. Amputation was done. The patient died three years later but the cause of death could not be learned.

In the third case the roentgenogram suggested a central tumor of the lower epiphysis and the shaft of the femur and amputation was done. The microscopic picture suggested fibroma, fibrosarcoma, and osteitis fibrosa. The patient was living six years after the operation.

The fourth case was diagnosed as osteitis fibrosa. Resection and bone transplantation were done. In 1926 seven years after the operation the patient was well.

ROBERT J. FURSTOV, M.D.

**Lucca E.** Experimental Studies of the Function and Regeneration of Muscle Fascia. (K. cercb. sp. rim. nt. l. s. l. fu. e. lla. rige. rasi. d. lile. f. sc. a. musc. lan.) *Chir. d. o. g. d. mo-* m. l. 1926 x 99

The experimental studies here reported were performed on dogs. A segment about 1 cm. square was removed from the fascia and the wound then closed. The animals were killed after ten, twenty, thirty, sixty, ninety, and one hundred and twenty days.

It was found that the differentiation of fascia into investing fascia and aponeurotic fascia is based not only on embryological and morphological factors but also on functional factors. There is a great difference in the function of the fascia of different muscles. In the cases of some muscles—the gastrocnemius for example—it was impossible to demonstrate a appreciable influence of the fascia on the muscle function whereas in the cases of other muscles the fascia had an aponeurotic character and was of great static and dynamic importance.

In the investing fascia the process of regeneration took place rapidly by means of an undifferentiated cicatricial tissue and was thicker than normal. In the aponeurotic fascia the regenerative process was brought about by a less rapid and less active formation of connective tissue which showed a tendency to assume gradually all of the morphological and structural characteristics of normal fascia.

The regenerative process in the aponeurotic fascia is decidedly influenced by the function of it, where muscle function is preserved or restored, the fascia tends to take on its original form quickly in order to fulfill its function. Where muscle does not function the loss of subcutaneous fascia is replaced by an exuberant matured cicatricial tissue. The different behavior of the elastic fibers in the fascia of functioning muscle and of the muscle is an obvious biological proof of the functional activity of the aponeurotic fascia.

The experimental production of a muscle hernia has not been successful. Attempts have been made. A continuity of the fascia alone is not sufficient in this condition. The pathogenesis is obscure. Ferranni claims that a muscle hernia it is necessary for the muscle.

The aponeurotic fascia is functional with muscle function. Its total complete longitudinal incision abolishes the force and maximum height and consequently of the muscle. The functional value of the aponeurotic fascia is due to its clasp-like partial insertion which the fibers help to maintain.

**Fowler A. A. Case**  
Functional Repr.  
a Bone Gr. ft. B.

The author reports that the metacarpal which it was suspected to be rounded at the distal end was denuded carpal muscle suture begun early and eburnated and base of the pt

In talipes equinus the peroneus longus is transplanted to the scaphoid and the peroneus brevis to the cuboid. In talipes calcaneus the two peronei the tibialis posterior the flexor digitorum and the flexor hallucis are all attached to the gastrocnemius. To prevent stretching a silk ligature is placed between the tibia and the calcaneus and the patient is carried by apparatus for at least a year.

In talipes varus a silk ligature is carried from the tibialis anticus to the myotendinous line to the cuboid bone. As a result the tibialis anticus exerts an even tension on both sides of the foot.

As a substitute for the paralyzed peronei a silk sinew is placed from the middle of the gastrocnemius to the external edge of the calcaneus.

In talipes valgus the peroneus is transplanted anteriorly to replace the tibialis anticus. The posterior is replaced by a silk sinew from the middle of the gastrocnemius to the median surface of the calcaneus. When there is a weakness of the quadriceps the anterior half of the tensor muscles is transplanted and a silk sinew suspended from the middle of the sartorius to the knee cap.

For the relief of paralysis of the gluteal muscles the author has performed two operations. In one the erector spinae is lengthened with silk sinew and fixed to the lesser trochanter. In the other the latissimus dorsi from the sound side was substituted for the median and small glutei of the paralyzed side. In both cases the result was most gratifying.

Since the introduction of the use of parchment into the already established method of employing silk tendons tendon transplantation has become a success with promise of new possibilities in paralysis. In 90 per cent of the cases the result is successful. The author says: "The operation is a great addition to orthopedic surgery in general and many surgeons will welcome the freedom from scheming after they have decided upon an operation in which muscle tension is to be established perhaps from a fair distance."

ROBERT V. FURSTO, M.D.

Colt G. H. The Surgical Treatment of the Deformed Hand. B. J. S. 97, 56.

The author cites two cases of primary plastic operation in which there was very severe denudation of the hand. In the first the denuded hand was embedded in the abdominal wall and in the second embedded in the upper part of the thigh. In the latter position better dependent drainage and pressure were obtained. It is advisable to place the fingers in separate pockets as divergent as possible.

DANIEL H. LEVINTHAL, M.D.

Delee L. and Christophe L. The Results of Operative and Non-Operative Treatment of Pott's Disease in the Infant (Réultats d'une série de 151 de Pott'sche Infants par la méthode glati-non-giant). J. d. h. 96, 11.

Of eight children with Pott's disease who were not operated upon three died three became worse

with accentuation of the gibbus and cord symptoms and two progressed favorably. Of those operated upon by the Albee method three progressed satisfactorily and have developed no complications three are in good condition despite a cold abscess and one developed a second focus after an excellent cure of the first one. In only one of the cases operated upon did the gibbus become worse. The detailed histories of twenty cases are given.

Pott's disease in the child has a high mortality. Albee's operation rarely fails to arrest the development of the gibbus and reduce the period of treatment. The operation is a very valuable one.

In the cases reviewed a modification of the original Albee technique was used. Osteoperiosteal grafts only 2 mm thick being raised with a chisel and placed in the split spinous processes. This obviated separation of the muscles from the processes which is always accompanied by considerable bleeding.

ALBERT F. DEGRAFF, M.D.

Mezzari A. Subperiosteal Resection of the Spinous Processes in Consolidated Gibbus (Resezione sottoperiosteale delle apofisi spinose nei gibbi consolidati). Chir. d. o. g. i. d. m. v. ment. 926, 1913.

The author reports thirteen cases of subperiosteal resection of the spinous processes in consolidated gibbus and concludes that the operation is a harmless and valuable procedure. The results vary however according to the angle and site of the gibbus. The less the deformity the better the cosmetic results. In cases of gibbus caused almost entirely by protrusion of the spinous processes radical correction is possible but when the gibbus is due chiefly to the angle formed by two segments of the spinal column as the result of destruction of the bodies of one or more vertebrae and is increased by protrusion of the spinous processes on the vertebra it is possible only to round off the angle so that the deformity is changed into a round back. It is easier to preserve the skin over a round back than over a sharp point and the round back presents a better surface for supporting orthopedic apparatus.

In some of the author's cases there were mucous bursters over the projecting processes and in one case a serious phlegmon resulted.

The operation described gives better results in lumbar gibbus than in dorsal gibbus but it has long been known that dorsal kyphosis is more serious than lumbar kyphosis.

All of the author's patients were adults in whom the development of the skeleton was complete. The operation is not indicated in the cases of young children.

Even in cases of serious kyphosis the results were encouraging because a compensatory lordosis was established above and below the gibbus and the line of gravity was moved inward thus contributing to the esthetic effect. Late examinations have shown that the operation does not injure the cord.

AUDREY G. MORGAN, M.D.

ossification. It is of interest anatomically because of its rarity and has a medicolegal importance because its presence is apt to be confused with a fracture of the base of the fifth metatarsal.

In making a diagnosis is the following pertinent facts regarding os vesalianum pedis should be borne in mind:

1 The condition occurs during the period before complete union of the epiphysis

2 It is bilateral

3 The usual signs of fracture such as tenderness, discoloration and swelling are not present

4 The line of cleavage between the accessory area of calcification and the base of the fifth metatarsal is longitudinal and parallel with the long axis of the metatarsal bones

5 The adjacent surfaces of the two bodies are smooth in outline

The author reports one case

CHARLES H. HEACOCK, M.D.

Muell, W. Further Observations and Investigations of Typical Diseases of the Sesamoid Bones of the First Metatarsal (W. tere B. o. bachtu gen und U. tersuch. gen. u. de. typ. schen. E. krank. g. d. r. Sesambeine des I. Metatarsalknochens). *Beitr. z. klin. Ch.* 1906, cxxxii, 494.

Complaints due to pathological changes in the sesamoid bones are not uncommon. In the four cases he reported previously the author adds three more. All of the patients were women between the ages of 18 and 30 years. A previous trauma could be excluded, but in every case the pain began after some form of strenuous exercise such as dancing.

In the roentgenogram a division of the median sesamoid bone into two or more parts could be seen. Histological examination of the extirpated bone demonstrated within it a definite necrosis which was not of the same type as the necrosis of Koehler's or Perthes' disease. There was no necrosis of the medullary tissue and the necrosis of the bone tissue was not complete, there being always lamellae with well preserved nuclei. The latter, however, showed no attempt at regeneration. Therefore it is incorrect to designate the condition a malacia of the sesamoid bone. A predisposition of the skeleton as a whole is evident in the fact that the condition may be bilateral. Its familial occurrence has also been noted.

Histological study shows definitely that the two halves of the bone are not formed by different ossification centers. The transverse cleft results in the course of time from mechanical causes and corresponds to the end of the so-called zone cell arrangement. It is not a true fracture because there is no history of trauma and no evidence of regeneration.

In the more marked cases in which rest and protection cause no improvement the operative removal of both sesamoid bones is to be recommended.

HARMS (Z)

## SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Todd, A. H. The Possibilities of Operation in Infantile Paralysis. *Lancet* 1917, cccv, 864.

The purpose of this article is to indicate what expert orthopedic surgery can offer for certain types of cases of infantile paralysis.

If the non-operative treatment has been adequate no operation should be performed within about three years of the onset of the attack. An important factor in the choice of the type of operation is the patient's age.

The author describes tendon transplantation discusses its limitations and emphasizes the danger of robbing Peter to pay Paul.

To obtain stability of paralyzed feet a combination of the methods of Dunn and Hoke is used. In practically all cases of advanced paralysis this procedure will produce a stable foot with simultaneous rectification of any gross deformity that may have occurred in the course of years.

Myotomies and capsulotomies are of great value in the correction of deformities. Various methods are described. Amputation is rarely advisable. The principal indication for amputation in infantile paralysis today is the presence of intractable ulceration of the affected limb. Even in the presence of such ulceration, however, every method of conservative treatment should have been tried and the capacity of the patient to control an artificial limb if amputation is performed should be most thoroughly considered before the operation is advised.

ROBERT V. FOSTER, M.D.

Lange, F. Tendon Transplantation. *Surg. Gyn. & Obst.* 1917, xli, 455.

Transplantation of tendons to restore lost function was first suggested by Nicoladoni. Nicoladoni's operation was not altogether successful, however, because the strong tendon was transplanted into the paralyzed tendon and stretch took place subsequently. The Lane method transplants the tendon of the unparalyzed muscle into the paralytic tendon at the attachment of the paralyzed muscle. The fixation is made by means of Turner silk No. 6 or 12 thoroughly sterilized. Care is taken to avoid placing the sutures near the skin incision. Lane uses also silk sinews about which is formed tendinous tissue similar in nature from the mechanical point of view to a real tendon.

The best results are obtained when there is considerable adipose tissue.

In experiments on dogs pieces of paper bands 10 or 12 cm. square were placed in the tissues. Around these pieces connective tissue was formed. It was found that the paper graft was expelled in only 1 per cent of the cases.

Subsequently on account of the friability of the paper parchment was substituted. This has given excellent results in tendon transplantation and tendon sutures.

fascia from the opposite thigh is sutured over the ends of the bones and the posterior surface of the patella. In this manner the entire joint is lined. The joint is then closed carefully and a piece of sterile goldbeater's skin placed between the tendon and skin sutures.

After the operation the leg is placed on the previously prepared plaster splint in semiflexion and traction of 1 kgm is applied. During the first few days after the operation this traction is gradually increased to 5 or 6 kgm. Passive movements are begun about the second week. On about the twenty-fifth day massage, heat and electricity are applied and the extension is discontinued. Careful supervision is necessary for several months. The patient does not realize the full benefits of the operation until after several years.

Lutti has treated by this method twenty cases of war wounds, seventeen of acute arthritis, twelve of gonorrheal arthritis, seven of chronic polyarthritis, four of fracture, one of puerperal arthritis, and one of post-traumatic arthritis. The results were good in fifty-two, moderate in motion of only 25 degrees or less in five, and poor (re ankylosis) in four. There was one death. The best results were obtained in chronic polyarthritis. MICHAEL L. MASON, M.D.

#### Cumbradenne I. Indications for Operative Treatment of Congenital Equinovarus Club Foot

In the early days of life it is possible to obtain complete reduction of congenital equinovarus club foot by manual manipulation, but the correction must be maintained and observed often for several years.

In the period of relative reducibility, when manipulation has proved ineffective, other means must be employed such as (1) section of the internal lateral ligament of the tibiotarsal articulation, (2) section of the internal plantar surface of the foot (helps peronei), and (3) section of the tendon of Achilles after correction of the tarsal deformity.

In the period of complete irreducibility, when the deformity cannot be corrected by the section of tendons, it is necessary to resort to operative means such as periastragaloid excision, tarsal resection, and tarsal fusion.

In the period of irreducibility, an attempt is made to place the tarsal ligament in good position between the tibia and talus. The author objects to this procedure because of the injury to the tibiotarsal articulation.

(4) The astragalotomy, the Whitman method with the removal of the foot is the method of choice.

(5) If tarsal resections correct the equinovarus deformity but shorten the foot and do not completely correct the supination. The author prefers the talus resection in the peak of the tarsal deformity in the metatarsal region to correct the equinovarus and performed in the subastragaloid region to overcome the supination.

In some cases the internal torsion of the leg bones requires correction by osteotomy on the lower end of the tibia. ELYN J. BERKHEISER, M.D.

### FRACTURES AND DISLOCATIONS

#### Magr S. The Use of Regional Anesthesia by the Nerve Block Method for the Reduction of Fractures and Dislocations. Surg 1917 1: 1-65

The well known contraindications to inhalation narcosis in general surgery are applicable to the reduction of fractures and dislocations. The author therefore tried regional anesthesia in a series of fractures and dislocations to determine its relative merits and indications.

Local infiltration anesthesia in the treatment of fractures has been advocated from time to time ever since 1885 when Conway first reported the successful reduction of three fractures of the radius under anesthesia induced with cocaine. Reclus in 1903, Lerda in 1907, Quénu in 1908, and Cohn in 1920 reported successful results by similar method. Dolinger and Hagenback advocated the circular infiltration of novocain proximal to the site of the fracture. The only mention known to the author of the use of nerve block in the reduction of fractures was Brown's report of brachial plexus block made in 1913.

Nerve block produces an anesthesia of the involved area and avoids damage to the already injured tissues. To be satisfactory for the reduction of fractures and dislocations the anesthesia induced must render the procedure painless and establish adequate muscle relaxation.

The choice of the author's cases was governed by the therapeutic indications which are more or less standardized in his clinic. The main requirement was that the type of fracture or dislocation be one that would warrant an immediate manipulative reduction in contradistinction to one requiring prolonged traction and suspension. Fractures of the neck and shaft of the humerus and femur are commonly treated by traction and suspension.

Analgesia is readily induced by nerve block and lasts from one to two hours. Different susceptibilities may cause some discomfort, but with co-operation and the preliminary use of 4 gr of morphine this may be overcome.

Six cases of fracture and dislocation are cited as examples of the degree of muscle relaxation obtainable. Of the series of fifty cases reviewed, reduction was successful in forty-nine. The only unsuccessful result occurred in a case of fracture of the os calcis in which an open operation was necessary.

Nerve block may be done at various levels proximal to the site of the fracture or dislocation. In the cases cited, different levels were tried in the treatment of similar lesions. In fracture of the lower third of the forearm and leg, nerve block of the elbow and popliteal space respectively proved satisfactory, but in fractures of the upper or middle

Thornton L. The Treatment of Osteomyelitis With Special Reference to the Lower Third of the Femur. *J Bone & Joint Surg* 1917 12: 294

In the early stages of osteomyelitis of the femur the treatment should be incision for drainage. Later when there is a line of demarcation between the dead and living bone and when enough new bone has been formed to insure strength of the shaft radical operation is indicated. The inner surface of the thigh is chosen as the operative site because the destruction is usually greater over the inner posterior cortex and healing occurs more rapidly in this region because the muscle fill into the bone cavity more readily than in other regions.

When the disease remains diffuse the case is inoperable as operation with complete excision of the shaft would be inadvisable.

ELEVEN J. BERKHEISER M.D.

Horan M. Reconstruction of the Anterior Crucial and Internal Lateral Ligaments of the Knee Joint. A Record of Eleven Cases. *Bull J Surg* 1937 11: 569

Horan reports eleven cases of reconstruction of the anterior crucial and internal lateral ligaments of the knee joint by Smith's modification of the Hey Groves operation. The technique is as follows:

A J shaped incision is made from the outer side of the thigh below the tubercle of the tibia and up over the inner aspect of the knee. The patella is then exposed split vertically and retracted. The external condyle of the femur and the internal tuberosity of the tibia are drilled through in the line of the anterior crucial ligament. A strip of fascia lata 1 1/2 in wide is then turned down from the thigh and drawn through the tunnel in the condyle and tibial tuberosity. The adductor tubercle is drilled subcutaneously and the free end of the fascial strip passed up through this tunnel turned down on itself and sutured.

Early and thorough reeducation of the muscles of the limb is important for success. After the operation on prolonged immobilization of the joint by splinting or plaster and later mechanical support of the joint by a knee cage or similar appliance are to be avoided as they are followed inevitably by atrophy and impairment of the support given the joint by the musculature.

The operation results in a joint capable of withstanding the stress and strain to which it is subjected in the course of ordinary life.

DA. L. H. LEITCH M.D.

Chenallier C. H. Arthroplasty of the Knee (Lamproth's method). *J Bone & Joint Surg* 1917 12: 271

Ankylosis in extension should no longer be considered a satisfactory end result for arthroplasties on the knee because in selected cases a movable useful joint can be obtained. The best simplest and most easily carried out technique is that of Putti. The best material for transplantation is a free sheet of aponeurosis.

The operation is to be considered only when all evidence of infection has disappeared there is no foreign body fistula or sequestrum in the joint and the bony loss is not too great and the muscles show no atrophy. If the patient is receiving compensation because of the disability the arthroplasty is likely to fail. In tuberculous cases surgery is rarely justified but if the process has been healed for a long time and the patient greatly desires operation it may be tried. If the healing of the arthritis has taken place with joint in flexion and if it is complete arthroplasty may be attempted otherwise the knee should be fixed in extension.

In the author's cases arthroplasty is preceded by several weeks or months of treatment to clear up any infection and if the knee is fixed in flexion to lengthen the tendons. Massage and electricity are applied to the quadriceps. Just before the operation a plaster of Paris splint is molded to the other leg in semiflexion to be ready after the intervention, and adhesive strips are applied to the calf of the leg to be operated upon so that traction can be applied immediately after the operation.

Under spinal anesthesia supplemented at times by ether an inverted U shaped incision is made above the patella the arms of the incision being extended down to the level of the femorotibial joint. From the center of this incision above the patella a vertical cut is made upward over the tendon. The two lateral flaps thus formed are raised at either side of the knee cap and the vasti on the sides and the rectus in the center are exposed. The vasti are then cut along the sides of the patella and the incision carried upward at the sides of the tendon of the rectus so that the latter lies free at the sides but remains attached above and below. The tendon is then split in a frontal plane. The anterior half represents the rectus tendon and the posterior half the vastus tendon. The anterior leaf is sectioned just above the patella and the posterior leaf about 5 or 6 cm above it. In this way the tendon may be lengthened when the time for closure comes.

If the ankylosis is fibrous the dissection may be done with a knife and scissors. In order to clean the entire joint it is often necessary to cut the crucial and lateral ligaments. After the removal of adhesions and modeling of the bones these are reattached. Great care is taken over the popliteal vessels. The bony surfaces are trimmed or modeled with a chisel and file so that the condyles are rounded and convex the trochlear surface is concave and a anterior or distal fossa is cut out. The upper end of the tibia is provided with two concave surfaces corresponding to the convex surfaces of the femur and a concave condylar ridge is left between them. The posterior surface of the patella is trimmed and made smooth and a ridge such as is present normally is left in the center.

If the ankylosis is osseous the separation must be made in the center of the line of separation passing slightly above the femorotibial joint. After the bony surfaces have been well smoothed down a strip of

day the patient was able to move his head freely in all directions without pain

X ray examination after the operation showed absence of the fractured and projecting part of the anterior arch of the atlas

ROBERT V. CUNSTON M D

Boorstein S W Radiography During Manipulation for Closed Reduction of Congenital Dislocation of the Hip *J B & Jo* 15 15 1927  
i 30

Boorstein has found that in the closed reduction of congenital dislocation of the hip better results are obtained when the reduction is effected under the fluoroscope or the roentgenogram is taken before the plaster is applied. He therefore effects the reduction on the roentgenographic table. It is not safe to use the fluoroscope throughout the entire manipulation but a roentgenogram can readily be taken as soon as the surgeon believes that the hip has been reduced or that the position for the change is good.

The roentgenographer can develop the plates while the child is still under the influence of the ether. During this time the hip should be held by the assistant. If the surgeon is dissatisfied with the position shown in the roentgenogram he is then able to change it. After it is changed another roentgenogram should be taken. If at the time of changing the plaster he is not certain which angle is preferable he can take roentgenograms in two positions and then choose the better. After the plaster has been applied and is dry another print should be made of the position to serve as a permanent record.

Sinclair M Fractures of the Limbs *Lancet* 9 7  
ccxii 90

The author reviews the treatment of fractures of the arm and leg with reference to the advances made during the World War. He believes that not enough time has been given to the teaching of fracture treatment and deplors the present day hurried treatment due to the deficiency in the number of beds available for fracture cases.

With the introduction of the roentgen rays fracture treatment was greatly improved as the roentgen examination will reveal the presence of a fracture, the shape and position of bone fragments, any co-existing dislocation of or injury to a joint, the presence and situation of gas gangrene and of air in the soft parts, the presence of bipp, the formation of and character of callus and the solidity of new bone formed. Comparisons of films taken in two planes at specified regular intervals during the treatment offers the best means of arriving at a correct prognosis. Moreover it can be determined with the roentgen ray just what variety of internal mechanical fixation will be best for a particular case and during manipulation under the screen immediately before the application of a splint or of plaster of Paris it is possible to determine the areas of the limb to which the reconstructive forces must be applied in order to maintain the corrected position of the fragments.

First aid treatment is of the greatest importance. After its administration the treatment should be continuous until a cure is effected. If operative measures are necessary they should be instituted soon after the injury and under perfectly aseptic conditions. If there is serious bleeding during the first aid treatment the wound must have first attention but when the loss of blood is not dangerous the limb should be at once immobilized.

Sinclair does not favor the mass excision sometimes done during the war. He warns also against the prolonged use of a tightly applied tourniquet.

The initial force employed in extending the limb should never be allowed to relax; its relaxation will cause the fragments to be displaced.

Too much movement of the patient and too active treatment soon after the injury may cause shock. By means of rest and the early efficient application of the Thomas splint the mortality from shock during the war was reduced from 80 to 20 per cent.

Repeated roentgen examinations are essential for successful results in the treatment of fractures.

D. FREDERICK JOSTES M D

third nerve block of the brachial plexus and sciatic nerve was necessary for sufficient relaxation of the muscle groups. Popliteal block is found satisfactory also for the treatment of fractures of the ankle. In fractures of the phalanges sufficient relaxation is obtained by block of the lateral nerves about the bases of the fingers or toes.

Local anesthesia has far fewer complications than general narcosis and is devoid of the shock, unpleasantness and hazards of general narcosis. It does not require the hospitalization of an ambulatory patient and may be readily induced wherever the proper aseptic precautions may be observed.

NORMAN C. HULLOCK, M.D.

**Diez S:** The Anatomicopathological Characteristics of Fractures of the Long Bones of the Hands and Feet in Relation to the Mechanism of Their Production. Criteria for the Diagnosis of Self Inflicted Injuries (Contributo allo studio dei caratteri anatomicopatologici delle fratture dell'ossa lunghe delle mani e dei piedi in rapporto con i meccanismi patologici criteri per la diagnosi d'autoleonismo). *Pol. di R. me.* 1927 xxx ser. ch. 10.

During the war many soldiers inflicted wounds upon themselves in the hope of getting away from the front and in industrial plants workers often injure themselves to obtain compensation. The only way to determine that such injuries are self inflicted is to make the patient give a detailed description of the accident—tell whether it was a fall on the hands or feet or a blow from a heavy body and if the latter tell the size and direction of movement of the body. A careful study must then be made of the fracture to determine whether the injury could have been produced by a force acting in the manner described. When a workman injures himself he generally does it by placing his hand or foot on a hard surface and striking it with a hammer or other heavy body and he tries to graduate the force so as to produce a fracture with as little pain and injury as possible. A careful study often shows a difference between a fracture produced in this way and one produced by an accident such as that described by the workman.

The author reports illustrative cases of fracture of the metatarsals, metacarpals and phalanges produced by compression, crushing, direct and indirect flexion, torsion and avulsion.

Crushing does not cause isolated longitudinal fractures in the bones of the hands or feet. The fracture lines are generally solitary and transverse or oblique depending on the direction of the force with reference to the bone and the margins are more or less dentate. A force that is not very great produces in the hand multiple fracture lines or comminuted fractures and contused wounds of the overlying soft parts. The toes are protected somewhat by the shoes. Fractures due to crushing may be differentiated from fractures due to flexion by the position of the fragments which in the latter form an angle with its apex in the direction in which the force acted.

The presence of a comminuted fracture excludes the possibility of fracture from flexion and shows that the bone has been crushed. After direct trauma the direction of the fracture lines whether transverse or oblique or possibly longitudinal is not sufficient in itself to establish the mechanism but the latter can be determined from the localization of the fracture in the epiphyses or diaphyses.

Direct fractures from flexion always occur in the diaphyses. Total or partial detachment of the epiphysis indicates crushing. Indirect fractures from flexion occur in the neck and may involve several metacarpals. They differ from epiphyseal fractures due to crushing in the fact that they never involve the joint heads.

Fractures from torsion show oblique spiral lines in the direction of the action of the force or a V line in the diaphyses.

Avulsion fractures generally occur in the thumb and are associated with detachment of the apophysis. The nature of the force which produced the fracture can be deduced from a study of the lesion of the soft parts. ANDREY G. MORAV, M.D.

**Oppel W. A. Ante I. R. S. bluzati n. of the Atlas.**  
L. 1927 cx. 698.

The author reports a case of anterior subluxation of the atlas in a man of 30 years who sustained the injury while carrying on his back and a most heavy load of 100 lbs. At first the nature of the injury was unrecognized and the condition was treated by extension and the application of a plaster bandage. Three months after the injury the patient returned to work but twelve weeks later his symptoms recurred. When he then came under the author's observation the roentgen plate showed (1) a decrease in the space between the spinous process of the axis and the posterior arch of the atlas and (2) forward displacement and fracture of the anterior arch of the atlas. The head being fixed complete roentgenograms were difficult to obtain.

As the condition failed to improve under treatment with the plaster bandage and extension operation was decided upon and a plaster bandage was made to embrace the right half of the head, neck and body.

At operation the patient in his plaster bandage was laid on the right side and an incision made along the posterior margin of the left sternomastoid muscle. The accessory nerve of Willis was sacrificed and the retropharyngeal space was entered. The arch of the atlas projected forward could be easily palpated. In the chisel-off of the anterior arch considerable difficulty was encountered and it was necessary to place the index finger in the retropharyngeal space to direct the chisel. The anterior surface of the odontoid process was found to be enveloped in adhesion.

Six days after the operation while the patient was still in his plaster bed he was able to move his head slightly. The plaster bed was removed ten days after the operation and on the seventeenth



examination of the larynx with a mirror becomes doubly important in all cases of goiter because monolateral paralysis is often present and unsuspected. I should think your method was especially indicated in cases of goiter because of the fact that these patients every now and then die on the table from obstruction of the airway due either to paralysis or to some other condition. Your tube would make sure of a clear airway.

The ideas that you have submitted appeal to me strongly. In fact I see a great future ahead for your tube provided you develop smoothness and dexterity of technique as far as insertion is concerned.

In order that this method may come into use to the extent which it deserves it will be necessary for the anesthetist to master the simple technique required to expose the larynx. I feel sure also that shortly after your methods are introduced someone will try to demonstrate that it is easier to introduce the tube by sense of touch similar to the manner of O'Dwyer. This will lead to disappointment failure and the discontinuance of the method.

The intratracheal method of anesthesia is proposed as a safe and efficient method with the single advantage requiring intubation by direct vision and the presence of the intratracheal tube in the mouth.

The following advantages may be enumerated:

1. The elimination of complicated motor driven apparatus, manometers and devices for warming and heating the vapor, an operative field free from escaping insufflated vapor, an operative field free from anesthetic normal respiratory rhythm and amplitude, conservation of carbon dioxide, exclusion of foreign matter such as blood and mucus and ability to maintain the lightest anesthesia.

2. Complete control of artificial respiration by the simplest methods.

3. A technique which makes available the maintenance of anesthesia by ether, nitrous oxide and oxygen, ethylene or any combination of the agents.

4. Protection from external pressure on the trachea.

5. A method for operations on the nose and throat which gives a field resembling that offered with the use of chloroform with the safety of a light ether anesthesia and protection against the aspiration of blood.

6. A field of practical aseptics for plastic operation on the face.

William F. Sicker, M.D.  
 11 Irvington E. and Wertheim H. Brachial  
 Plexus Block. Its Clinical Application. J. Am.  
 Med. Assn. 1911, 11: 1465.

Blocking the brachial plexus was first described by Kulenkampff in 1911. Following initial reports

on this procedure many complications and untoward effects were described such as deposition of the solution within blood vessels, injury to the pleura or lung, paralysis of the phrenic nerve, toxic manifestations and injury to the cords of the plexus. Because of these reports the method lost favor but eventually the supraclavicular route of Kulenkampff became the accepted path of approach. The technique became better standardized and more favorable reports were published.

This type of anesthesia is of a advantage because it is limited to the portion of the body to be operated upon, the vital centers being unaffected. It results in a physiological section of the nerves supplying the upper extremity and reduces shock to the minimum or prevents it entirely and it preserves consciousness which is an objective of clinical value especially when the operation is done for the repair of lacerated tendons of the wrist under which circumstances the cooperative movement of the various muscles renders certain the identification of the structural units. Also after the reduction of fractures it permits the patient to go immediately to the X-ray room for a follow up plate and allows a secondary reduction without pain if further correction is necessary.

The advantages of brachial block over local injections at or below the elbow are that as the site of the injection is away from lymphatic channels there is less danger of passing the needle through infected tissue and the tissues are not distorted or devitalized through the deposit of the solution at the site of operation.

The authors review a series of 105 cases in which operation was performed under brachial plexus block. In 102 of these the operation was completed without additional anesthesia. The chief difficulty encountered was failure to obtain uniformly complete anesthesia. In the strict sense of the term complete anesthesia is never obtained by any nerve blocking method, touch sensations always remain the patient being conscious of manipulations at the operative field. For this reason the psychic preparation of the patient and adequate preliminary doses of narcotics are of unusual importance when brachial plexus anesthesia is to be used. Adequate doses of some synergistic drug such as morphine or scopolamine should be given prior to the block.

Contact with the nerve trunks must be avoided. The operation must be delayed until the finger tips are insensitive to pain. An interval of fifteen minutes should be allowed after the injection before tests for anesthesia are made. The patient must be kept recumbent and under observation until the anesthetic effects have worn away.

Jacob S. Grovz, M.D.

# SURGICAL TECHNIQUE

## ANÆSTHESIA

Finson A. B. Convulsions Occurring During Surgical Anæsthesia. *B. J. M. J.* 1927, 1, 959

Finson reports fifteen cases of generalized convulsions occurring during ether narcosis in his experience of over 15,000 anæsthesias. All were seen during the last two and one-half years. The first has been an anæsthetist for nine years. The seizure comes on at any time during the anæsthesia. It may continue until the end of the operation or later or it may cease only to recur several hours later before the patient has regained consciousness.

The convulsions begin with twitchings of the eyelids, face or arms and rapidly generalize. The onset is usually lingual first, then either clonus which is coarser and more rhythmical. Just before the convulsion starts the breathing usually becomes jerky, ventilation becomes poor and there is persistent cyanosis. Soon the poorly coordinated respirations seem to overflow over the body in the form of generalized convulsions. The seizure may stop spontaneously or after treatment or end in death. Five of the cases ended fatally. No history of epilepsy, chorea or previous convulsions was obtained in any case. Either by the bomb method was used in all. Nearly all of the patients were young persons with acute infection. In most of the cases the condition was preceded by difficult, insufficient or stertorous breathing with cyanosis.

Finson attributes the convulsions largely to increased carbon dioxide in patients sensitive to it either naturally or as the result of toxæmia or pyrexia. In his last six cases in which the treatment was based on this assumption the seizure was short or not generalized. The treatment is directed toward the prompt removal of excess carbon dioxide by removing coverings from the face, air the room, relieving any obstruction of the air passages and allowing oxygen toward the mouth. Recovery from anæsthesia is allowed to proceed as far as the stage of operation will allow. The success of the treatment depends on the promptitude with which the onset of convulsions is foreseen.

BLATO. CLARK JR. M.D.

Flagg P. J. Intratracheal Inhalation Preliminary Report of a Simplified Method of Intratracheal Anæsthesia. Devised Under the Supervision of Dr. Chevalier Jackson. *A. J. Otolaryngol.* 1927, 3, 94

There exists a real need for a simple intratracheal method of anæsthesia. Intratracheal insufflation because of its complexity leaves much to be desired. Intratracheal inhalation furnishes a solution of the problem provided sufficient ventilation is secured.

A conference with Dr. Chevalier Jackson led to experiments in his clinic to determine the diameter of the large tube which may be substituted as permitted to be within the cords for a period of at least two hours without producing undesirable symptoms.

Jackson's opinions are: An infant a few months old can tolerate a 4 mm. bronchoscope which is about 5 mm. outside. In a child of 6 years we use a 6 mm. bronchoscope about 7 mm. outside. In an adult we use a 9 mm. bronchoscope which is about 10 mm. outside. All of the breathing is done through the broncho-cope when a full size is used.

There is no reaction of any consequence in a operation of as long as two or three hours. There is vastly more reaction from the bubbling back a fourth of the ether mucus when ether is given in the open method.

I am no authority whatever on the subject of anæsthesia. When it comes to exposure of the larynx, visual examination and the reaction of the mucus, I feel confident to speak.

We have fully determined the matter of the size of your inhalation tube. The largest size catheter 38 F. will enter the larynx of a man, the next largest size 32 F. will enter the larynx of a woman. Both of the foregoing are maximum sizes. It is possible that there may be an occasional patient in whom one would be a tight fit, but I do not believe that any harm would be done by leaving a tube of the respective sizes in the larynx for two hours.

In some cases 32 F. would be necessary for a man's larynx because of the glottis being somewhat less than the average man's. In any case a catheter of this size would pass an abundance of air for breathing purposes for any man. His condition should be perfect and his color good.

Of course if you will use a tightly fitting rubber tube no secretions will escape down at the tube into the trachea. I would regard it as wise always to aspirate the pharynx clear of secretion of all kind before the inhalation tube is removed from the larynx. If this is not done secretions will be aspirated into the larynx just as soon as your anæsthesia tube is withdrawn.

It would be advisable to have the larynx of patient examined with a mirror before anæsthesia particularly in every case in which you expect to use your method of intubation. This will protect you against unjust criticism. Patients are often have lesions unsuspected in the larynx. For instance a cord can be paralyzed and yet the patient may have an excellent voice. The patient may also have tuberculosis, cancer, papillomata or other lesions. Your tube will do no harm but it should not be blamed for things it does not do. This

## MISCELLANEOUS

### CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

**Jones E.** The Breakdown of Hereditary Immunity to a Transplantable Tumor by the Introduction of an Irritating Agent *J C cer Resea ch* 19 6 x 435

To demonstrate the part played by irritation in the results of tumor inoculation the author performed experiments on mice. The mice were from three strains which had been used extensively in genetic experiments. They are designated as the dilute brown the black and the albino. The dilute browns are a very homogeneous strain which has been produced by close inbreeding since 1909 and is 100 per cent susceptible to tumor inoculation. The black stock has been developed as a control group to Little's X-ray abnormalities. They are descended from Male 52 and Females 57 and 58 and are designated as Lines C57 and C58. The albino stock which was obtained originally from Bagg of the Memorial Hospital New York was inbred by Bagg and since then has been inbred by the author.

Both the black and albino stocks have been used in numerous experiments as non susceptible controls and no individual of either stock has ever grown the tumor progressively on simple inoculation only.

The tumor employed arose spontaneously in the dilute brown strain and was diagnosed by Ewing as an adenocarcinoma of the mammary gland. In a preliminary experiment carried out by Little in 1920 it was determined that this tumor grew progressively in 100 per cent of the dilute browns into which it was inoculated. The albino stock and the black stock were proved non susceptible.

Undyed flannel which was shown to be pure wool by microscopic examination was used as the irritating agent. It was cut into small pieces from 2 to 4 mm square and sterilized under 25 lbs steam pressure for an hour.

The mice were inoculated by the customary trocar method the tissue being placed in the axillary region. Ordinary conditions of asepsis were observed. Three modes of introducing the flannel were tried. In one after the hair had been clipped on the side of the mouse and the area had been swabbed with an iodine alcohol preparation a small incision was made and the bit of flannel inserted subcutaneously by means of sterile forceps. The tumor material was then introduced through the trocar as close to the flannel as possible. In other instances this method was varied by introducing the tumor material first. In subsequent experiments in order to insure the proximity of the flannel and tumor

tissue the flannel was soaked in an emulsion of tumor in physiological salt solution and then placed in the trocar with a piece of tumor tissue both being introduced simultaneously.

The histological examination and inoculations of the induced tumors into different strains of susceptible and non susceptible mice indicated that growth of the original tumor was induced by the presence of the flannel and that the neoplasms were not growths of the host tissue.

FREDERIC C. BANCROFT M.D.

**Carnett J. B.** An Atypical Cancer of the Forearm with a Discussion of the Biopsy Question *Surg Cl* 1927 11 243

Carnett reports the case of a laborer 24 years of age who twenty months before his admission to the hospital was spiked on the right forearm by a baseball shoe. The wound suppurated and then slowly increased in size. A physician was not consulted until a year later. A surgeon then advised amputation but the patient refused to allow it. Biopsy at that time was negative for carcinoma.

One month later the extensive lesion had destroyed the extensor tendons. In the bottom of the ulcer which bled easily and was surrounded by an elevated indurated skin margin the radius and ulna were exposed. One small epitrochlear gland and several axillary nodes were palpable. An interesting feature of the case was the repeated negative findings on numerous liberal biopsies taken from various places in the lesion. The microscopic examination revealed only chronic inflammation and the bacteriological examination was practically negative.

An extensive debridement of the entire ulcer surface was performed. This was followed by the surface application of radium without noteworthy result. The patient finally consented to amputation but refused operation on the axillary lymph nodes. With the exception of one slide which was suspicious microscopic examination of the excised ulcer failed to reveal evidence of malignancy. However the epitrochlear lymph node found in the amputated member showed metastatic squamous-cell carcinoma.

Carnett concludes that the cancer in this case developed because of the prolonged suppuration the latter acting as a chronic irritant to the epithelial edges of the wound. He believes that this case illustrates the fact that like any other laboratory report or clinical finding the biopsy finding must be weighed carefully when it conflicts with other evidence. The usual cause of an error is faulty selection of the biopsy material. In accessible lesions of the skin or mucous membranes it is better to make larger biopsies including a portion

# PHYSICO-CHEMICAL METHODS IN SURGERY

## ROENTGENOLOGY

Stephens J G and Frey H: An Investigation Regarding the Immediate Effects of X Rays on Living Animals. *Studies of the blood pressure respiration spleen volume and heart action showed no definite effect during prolonged irradiation. It is suggested that the contrary findings of other investigators may have been due to electrical leakage instead of the action of the roentgen rays.* *Am J Rad* 1917 23:1 159

Experiments conducted by the authors which are described in detail failed to demonstrate any immediate effects from roentgen radiation which might reveal the mode of action of roentgen rays on living tissue. A study of the blood pressure respiration spleen volume and heart action showed no definite effect during prolonged irradiation. It is suggested that the contrary findings of other investigators may have been due to electrical leakage instead of the action of the roentgen rays.

Attn H H M D

Desjardins A U: The Analgesic Property of Roentgen Rays. *Radiol* 1917 1:1 317

Roentgen rays as well as ultraviolet rays are known to possess definite analgesic properties. Animal experimentation bearing on this subject is naturally meager since it is difficult to determine the degree of subjective sensation in animals. The studies of Swann, although incomplete in that small doses of roentgen rays increase the irritability of nerves whereas larger doses diminish it. Among the numerous clinical reports is that of Cocht (1917) who described a case of trigeminal neuralgia and two cases of mammary cancer in which an apparently definite analgesic effect was obtained.

In 1900 Stembo reported having cured 11 X ray treatment twenty-one of twenty-eight cases of neuralgia. Many observers have noted that pruritus and anal pruritus vulva and the skin of chronic eczema are often promptly relieved after roentgen ray treatments. In the radiotherapy of benign and malignant tumors the analgesic property of roentgen rays is a matter of daily observation. The anodyne action of the X rays constitutes an indication for the use of irradiation not only in cases in which it may be expected to exert a marked inhibitory influence on the tumor but also in advanced or hopeless cases in which the relief of pain is the only object of treatment. Unfortunately we are not yet able to determine definitely before-hand which cases are likely to derive benefit. It is possible however to make certain broad generalizations. For example pain due to the pressure exerted by a tumor on nearby nerves is commonly relieved by a legitimate irradiation of the region occupied by the tumor. Pain due to pressure upon or irritation of nerve

roots by contiguous metastatic foci is usually controlled by irradiation. Whether such control is permanent or only temporary does not seem to be absolutely dependent upon the subsequent behavior of the neoplastic process.

## MISCELLANEOUS

Gauvain Sir H: Discussion of Light Treatment in Surgical Tuberculosis. *Proc Roy Soc Med Lond* 1917 10:5

Gauvain says that while heliotherapy will cure all forms of surgical tuberculosis it is usually very beneficial in this condition. It should be employed only to supplement other treatment.

Treatment by light may be general or local or both and the source of the light may be the sun or an artificial source or both. The best type of general light treatment in a given case will depend upon the nature of the patient's response.

In surgical tuberculosis heliotherapy is more effective in the constantly changing conditions found in temperate climates than in the comparatively stable conditions of tropical regions where the intensity of the light may be much greater. The superiority of sunlight over artificial light is due not so much to its intensity as to the variations in the character and intensity of the light supplemented by changing external conditions not due directly to it.

From his clinical experience Gauvain has learned that he may expect the greatest seasonal response in the spring and early summer. Progress becomes rapid provided stimulation is not increased beyond the patient's capacity to respond. Given a minimal light value the benefits of isolation may be ascribed more to the response elicited by the shock of the varying stimuli (light and others) than to the intensity of the light. The optimum light value varies in different cases.

Gauvain describes a practical method of supplying stimuli by the use of balconies with sliding roofs of mica glass. He believes that there is no evidence that the sum of the biological responses evoked will be similar in all persons irradiated by the same light under precisely similar conditions. The responses of different persons are most variable. A correct clinical estimate of the total effect produced is of greater value in the treatment than exact information as to certain reactions. At this stage of our knowledge exposures to light should be gauged by the estimated power of response judged on the basis of clinical experience.

EMIL C ROBINSON M D

shoulder and pelvic girdles and sarcoma of the soft tissues which is no longer localized.

3. Operation is definitely indicated for all sarcomata of the upper and lower jaw myelogenous sarcoma chondrosarcoma osteosarcomata and the peripheral sarcoma of the gall bladder breast ovary testicle and kidney and melanoma.

KEMPT (7)

## GENERAL BACTERIAL, PROTOZOAN AND PARASITIC INFECTIONS

McLeod J W Wheatley H and Phelon H A  
On Some of the Unexplained Difficulties Met with in Cultivating the Gonococcus. The Lancet 1923 by the Amino Acid B. J. L. p. 141, 11, 5

The continued introduction of new media for the growth of the gonococcus suggests that the principles involved in the cultivation of this microorganism are still unexplained. McLeod and his associates report that it is difficult to repeat the results of failure to grow on Voller on their peculiar media. After experiments with various types of media the authors draw the following conclusions:

1. The elements essential to the growth of the gonococcus appear to be: (a) some source of amino nitrogen and of carbon (b) salts such as are present in meat extract and (c) a medium which is capable of retaining the organism from undue concentration of certain amino acids and of enabling it to assimilate these and others. Blood heated between 50 and 60 degrees has proved far superior to other media in this respect.

2. Unless the gonococcus is protected by suitable medium it is liable to be killed by peptone solution. It is therefore essential that growth occurs in the presence of suitable concentrations of oil if the peptone concentration is to be 10 percent rather than 5 percent as is usually recommended for the cultivation of the gonococcus.

3. On investigating the effect of amino acids on the growth of the gonococcus it is found that they are highly susceptible to the effect of heat.

4. Amino acids inhibit the growth of the gonococcus at 0.5 percent irrespective of the amount of protein present. It is sometimes showing favoring effect on the growth of the gonococcus at 0.5 percent of amino acids (phenylalanine and perhaps others).

5. Amino acids inhibit the growth of the gonococcus when small amounts of protein are present in the medium.

6. Amino acids which are soluble in the presence of water are more effective than those which are insoluble. The best results are obtained with the soluble amino acids.

7. Amino acids which are soluble in water are more effective than those which are insoluble.

inhibition of growth owing to summation of inhibitory effects and in any case the gonococcus appears to be unable to utilize amino nitrogen unless a certain ratio of blood or equivalent colloid to amino nitrogen is maintained.

If these conclusions are correct the failure of the gonococcus to grow on ordinary nutrient agar depends upon an unduly low ratio of available colloid to amino nitrogen. WILLIAMS J. CARSON M.D.

Erojan S. Echinococcus Infection in the Industrial District of Baku (Die Echinokokkose im industriellen Bezirk von Baku). J. B. J. L. p. 141, 11, 5

In the hospital at Balaivan 185 cases of echinococcus infection have been treated in the last ten years. Echinophilia is not especially characteristic of echinococcus infections as it occurs also in hepatic cirrhosis and acute hepatitis. The best logical test is the intra-lesional test of Ithurrat (only one negative test in fifteen cases of echinococcus infection).

Of forty-five cases of echinococcus infection of the liver eighteen were operated upon by the one-stage Lankester method with one death and seven by the method of Delbet (partial resection) with primary union. In twenty cases the Ithurrat-Brow operation (injection of from 5 to 10 per cent formalin solution) was done.

Of six cases of pleuric involvement all were cured. In five cases of echinococcus infection of the lung there were two deaths. In two cases of renal infection nephrectomy was followed by good recovery. Operation gave good results also in two cases of echinococcus infection of the pleura. The author draws the following conclusions:

In the district of Baku echinococcus infection constitutes 0.01 per cent of all surgical affections and affects most frequently the liver, spleen, lungs and kidneys. Echinophilia is of no significance in echinococcus infection. The intra-lesional test is best and should be investigated further. In the treatment of the lungs the Bobrow method with formalin irrigation seems to be the best procedure as it permits primary closure of the wound. KEMPT (7)

Melkonian G. Echinococcus Infection in the Lenink Hospital (Die Echinokokkose im Lenink Hospital). J. B. J. L. p. 141, 11, 5

In a period of four years thirty-seven cases of echinococcus infection were treated at the Lenink Hospital. Thirteen were operated upon with six deaths, a mortality of 46.6 per cent. The author explains the mortality by the fact that the population of the region is very backward and the cases there are more frequent. Echinococcus infection is very widespread as the people live in close contact with animals.

of the ulcer the margin of the ulcer and a portion of the adjacent skin or mucosa. If proper safeguards are used the danger of favoring metastasis by opening up blood vessels and lymph channels is very slight. When the patient is anesthetized the cautery knife is used. In the cases of cancer patients a sharp knife used gently with ethyl chloride anesthesia is satisfactory.

When the diagnosis of cancer is deeper tissues are felt in. Carnett prefers to do the radical operation without running the risk of making a biopsy. He believes that a biopsy done in a deeply situated cancer is dangerous. In cases of sarcoma he usually avoids doing biopsies because of the large thin walled sinuses unless an immediate amputation is contemplated. The sum and substance of his remarks is in his last sentence in which he says that in any doubtful ulcerative lesion a biopsy should be the first step to settle the diagnosis. It will settle the question of cancer and tuberculosis and may show evidence of syphilis. Prolonged delay in diagnosis and repeated explorations of cancerous lesions are far more likely to result in the metastatic spread of the cancer than is early resort to routine biopsy.

J. A. H. C. TUCK, M.D.

Reinhard M. C. and Tuck R. J. B. *Reaction of Cancer Serum to Sheep's Blood Serum*. *J. Cancer Res. Clin.* 1936, 5, 428.

The authors tested Botelho's serum reaction on samples of cancer serum and sheep's blood serum. The proteins and amino acids were also investigated. The technique was as follows:

The serum was diluted with an equal volume of physiological salt solution. To 0.5 c.c.m. of the dilute solution there were added 1 c.c.m. of 5 per cent citric acid, 1 c.c.m. of formalin water, 1 m.c.c. 100 c.c.m. and 7 c.c.m. of a solution of 1 line in potassium iodide (iodine 1 part potassium iodide 2 parts distilled water to make 210 parts).

When the reaction is negative the fluid remains clear. Positive reactions are evidenced by the formation of a dark red precipitate.

Of the sera from fifty cancerous persons eight non-cancerous persons and five animals all reacted positively. The precipitate which is formed depends upon the presence of serum albumin and serum globulin. Of the amino acids studied only tryptophane reacted positively.

FREDERIC W. BAILEY, M.D.

Wollner W. *The Results of the Treatment of Sarcoma in a Period of Ten Years* (Fig. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100). *Angen Sark mb ba dlung*. *B. Ch. Ch.* 1936, 222, 11, 39.

In 1920 Schlegel reported that of eleven patients with sarcoma who were treated surgically at the Ludwigshafen Hospital three (20 per cent) still remained cured after five and a half years whereas of eight who were treated with the roentgen rays six remained cured after one and three quarters

years. Wollner followed up the last mentioned eight patients and found that three were still alive five six and seven years respectively after the completion of the treatment. The incidence of permanent cure was therefore 37.5 per cent in contrast to Kuttner's figure of 30 per cent for cases treated surgically.

In order to obtain further information with regard to the value of the roentgen rays in the treatment of sarcoma the author investigated the entire material of the hospital for the past ten years a total of sixty cases in fifty-one of which the diagnosis was confirmed by microscopic examination. Of the sixty patients twenty-two are still alive. The shortest period of freedom from recurrence is one year.

Of the twenty-one cases in which the treatment was exclusively surgical and the diagnosis was confirmed by microscopic examination six (28.5 per cent) remained cured after five years. Among these there were four cases of bone sarcoma, including one of epulis. In case of lymphosarcoma no results were obtained by operation. Eighteen cases of sarcoma were treated with the X-rays alone and twenty-one by operation and roentgen irradiation combined. Of the twenty-seven cases which remained after surgical treatment of those which were inoperable and were given roentgen treatment only five (18.5 per cent) remained cured after five years. The author explains this unfavorable result by the fact that in many of the cases of the series the prognosis was unfavorable (sarcoma of the perosteum and the pelvic girdle) and by the probability that the previous exploratory operations which had been performed in some of the cases had an unfavorable effect on the results of the X-ray treatment.

With regard to the roentgen dosage the author states that the original Seitz and Witz dosage of from 60 to 70 per cent of the skin erythema dose was not rigidly adhered to a practical middle value being used. Tumors such as lymphosarcoma and round-celled sarcomata were treated with low dosage (from 30 to 40 per cent of the skin erythema dose) and others were given from 60 to 80 per cent of the skin erythema dose. The preoperative irradiation recommended by Schmieden and Kohler was not given. Postoperative treatment was administered in some cases of recurrence even when the primary tumor was uninfected by the X-rays as it is known that recurrences and metastases often react better than the primary tumor.

To supplement the treatment described a vaccine treatment and chemotherapy were given.

With regard to the choice of operation the X-ray treatment alone draws the following conclusions:

1. Roentgen treatment is indicated definitely for all metastases and inoperable cases of lymphosarcoma and sarcomata of the tonsils and thyroid.

2. Roentgen treatment should be tried in all cases in which operation would be too destructive as in sarcoma of the skull, the sternum and the

reaction was positive the Weinberg reaction was also positive

In fifty-one cases of echinococcus disease of the liver the puncture was made shortly before operation. In nine cases in which it was made from one to several days before the operation there were three deaths. General anesthesia was used in fifty-seven cases and local anesthesia in six.

In sixty cases of echinococcus disease of the liver the following operations were performed: one stage marsupialization in thirty-two, two stage marsupialization of Volkmann in two, with rib resection through the diaphragm (Trojanow) in twelve, the Bobrow-Posadas procedure in ten, and total resection of the cysts with a portion of the liver (in one case also with the gall bladder) in five. Forty-seven of the patients recovered and ten died. The others could not be traced.

In the ten fatal cases the cause of death was pleural empyema with pneumonia in six cases, diffuse suppurative peritonitis in two cases, dysentery in one case, pneumonia in one case, and suppurative angiocholitis in one case. In three of these ten cases the puncture was made a few days before the operation. Amebic dysentery, which is very common in the Caucasus, is suggested by the author as the cause of the suppuration of echinococcus disease of the liver.

The author has had also five cases of echinococcus disease of the spleen. In three of these splenectomy was done, in one a marsupialization and in one a resection. The patient treated by resection almost died from hemorrhage. The author concludes that in echinococcus disease of the spleen splenectomy is the operation of choice.

In addition the author had eight cases of echinococcus disease of the abdominal cavity. In two cases the condition was in the ileocecal region, in four cases in the right half of the abdomen and in one case in the left half of the abdomen and the lesser pelvis. In one case the entire abdominal cavity showed echinococcus cysts. Seven of the patients recovered after the operation and one died. Partial extirpation and marsupialization was the operation of choice.

There were five cases of echinococcus disease of the lung. This is believed to be usually primary. Primary cysts of the pleura are very rare. The operation of choice was the one stage operation with rib resection first. The lung is fixed with a few catgut sutures.

There were three cases of echinococcus disease of the thyroid. In none of these was the diagnosis made before operation. In one case there developed during the operation a severe asphyxia which necessitated tracheotomy. The operation consisted in marsupialization.

In seven cases the muscles (iliopsoas, biceps, pectoralis major, etc.) were affected by the echinococcus disease. Extirpation was done in five cases and marsupialization in two.

The author reports also several cases of echinococcus disease of the bones. When the condition is localized in the vertebrae the prognosis is especially unfavorable. In one case the tenth rib was affected, extirpation far into healthy tissue resulted in a cure. In another case the third lumbar vertebra was involved and the patient complained also of sciatica and an abdominal tumor. Extirpation of the cysts by laparotomy resulted in a complete cure.

Кочу (L)

Strunnikov A. The Operative Treatment of Echinococcus Disease (Zur Frage der operativen Therapie der Echinokokkuskrankheit). Verhandl. d. Ch. Akad. d. Tu. skh. kas. sg. b. Baku, 1926.

In cases of echinococcus disease the author has operated for the past fifteen years according to the method of Posadas or the so-called second method of Bobrow, except that after evacuation of the fluid contents and removal of the chitin lining the cavity is carefully scraped out with a sharp curette and then swabbed out twice with formalin. The edges of the wound are then sutured with a continuous catgut suture and the ends of the suture are tied together so as to decrease the size of the cavity somewhat. The line of suture is peritonized with free transplants of omentum and then fastened to the abdominal wall by deep sutures which include also the tissues of the affected organ.

In all of the twenty-seven cases operated upon in this manner the convalescence was entirely normal. The liver was involved in twenty-two cases, the lung in one, the spleen in two, the kidney in one and the mesentery in one.

The author believes that this method known as the Posadas Orlov method is the best. Unfortunately, however, it cannot be applied to every case. It is inapplicable when there is hemorrhage from the cyst wall when infection of a purulent character is present and when the connective tissue capsule is extensively calcified. Кочу (Z)

Twenty four cases of hepatic involvement were operated upon in one stage three in two stages and two by the one-stage transpleural method. The Posadas Dobrov operation was not performed.

Of two especially interesting cases seen by the author one was that of a young woman who had a small tumor on her neck and was suffering also with paraplegia. Caries of a cervical vertebra was suggested. The patient died. Autopsy showed an echinococcus cyst of the fifth cervical vertebra which compressed the spinal cord. In the other case there was an echinococcus cyst which the author believed to be a tumor.

In the discussion of this report GIGOLOW (Tiflis) stated that from 105 operations for echinococcus infection he has come to the conclusion that the so-called closed method is the operation of choice. He reported a case in which he operated for echinococcus disease of the gall bladder. A fistula resulted and the patient died from asthenia.

TOGICHAER (Baku) reported an operation for echinococcus infection of the left submaxillary gland in a 13 year-old boy.

FEDOROV (Leningrad) stated that in his cases of echinococcus cyst of the liver he performs a radical resection of the cyst with a portion of the liver or at least with the fibrous capsule. In one case he resected the entire left lobe of the liver with the cyst. If severe hemorrhage results he gives virocol.

SICFAYO (Baku) reported an operation he performed on a 9-year-old girl with an echinococcus cyst of the liver. He removed part of the liver with the fibrous capsule and covered the suture line with a free transplant of omentum. Recovery resulted. He occasionally gives this patient fresh animal bile.

LEZKE (Lithuania) opposed the closed method; he uses only the open method.

KOLJBAKIN (Smolensk) advocated the closed method of operating. He cited a case of echinococcus infection of the thyroid gland which was operated upon in the clinic of Razumowskyj and a case of his own of echinococcus infection of the anterior abdominal wall.

FINKELSTEIN (Baku) stated that echinococcus disease is a common condition in the Caucasus and must be strongly combated. He cited a case of echinococcus infection of the pancreas and two cases of infection of the vertebral column in which he operated.

ZULNAXME (Tiflis) cited a case of a patient with echinococcus disease of the frontal region of the brain who was operated upon by him and recovered.

GRZODOWA (Tiflis) referred to two cases of echinococcus disease seen at the Tiflis clinic—one with multiple cysts of the abdominal cavity and the other with obstruction of the bile passages by a piece of chitinous material from the purulent echinococcus cyst.

NAPALNIKOW (Rostow) stated that in his opinion the fibrous capsule of the cyst should be removed as thoroughly as possible as it is not impassable by the echinococcus. KOCH (Z)

Ter Nerses G. The Present Status of the Question of Echinococcus Disease and Its Surgical Treatment (Ueber den gegenwärtigen Stand der Frage der Echinokokkenkrankheit und ihre operative Therapie). *Chirurgia* 1916, 1: 11-16.

For a long time it has been believed that most of the cases of echinococcus disease in Soviet Russia have occurred in the Caucasus. This belief has recently been confirmed by statistics from two large hospitals in Tiflis. In one of these hospitals there were 105 operations for echinococcus disease among 815 operations during the course of fifteen and a half years a percentage of 12.7. In the other hospital the corresponding percentage was 13.1. In the Transcaucasus echinococcus disease was found in 11.10 per cent of cases coming to autopsy. In Leningrad this percentage was 0.25 in Moscow 0.35 in Odessa 0.78 and in Noworossisk 1.

The author reviews ninety cases of echinococcus disease of various organs which he operated upon in a period of fifteen years. The parts of the body involved in these cases were the liver in sixty (thirty-seven females twenty-three males), the spleen in five (four females and one male), the abdominal cavity in eight (six females and two males), the thoracic cavity in five, the thyroid gland in three, the muscles in seven (six females and one male) and the bones in two (one female and one male).

As yet no pathognomonic sign of echinococcus disease is known. Of the laboratory methods of diagnosis those which are used most commonly are the Bordet Gengou Gredini and Weinberg tests but these give a positive result in only about 50 per cent of the cases. Especially when an eosinophilia is present a negative result does not necessarily indicate absence of the condition. Moreover a positive reaction may persist for a long time (up to ten years) after removal of the echinococcus focus.

Of much greater significance are the intradermal reaction of Casati and the subcutaneous test of Pontano. These tests are more accurate than the Weinberg test. In the author's cases the Casati test resulted in a correct diagnosis in 84 per cent of the cases, the Pontano test in 66 per cent and the Weinberg test in 50 per cent. Eosinophilia shows a positive result in only 30 per cent of the cases. Roentgenography and roentgenoscopy with pneumoperitoneum are regarded by the author as methods of value in the differential diagnosis of echinococcus disease of the abdominal cavity.

Most widely distributed is the hydatid form of echinococcus. The alveolar form is less well known in the Caucasus. Ninety per cent of the patients with echinococcus disease of the liver complained of pain in the right hypochondrium, palpitation of the heart, etc. The hydatid whirling was noted by the author in only three cases.

The Weinberg test was done in eighteen cases and was positive in eight. When the Wassermann



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- T d t e c t o a f i d o f f h a n s t e i n a l p o s x  
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- M g a u g m d l o o g m d c o l e s R F i S C H E T T  
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- C m p l e t p l p s e of the r e t u m C J D R U C K  
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- A b c e h o t h c t m H A C u l l m h t d y  
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- T h d u t a d u n d i r e t r a c t a f d n B e r g h J f  
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- The e s t i m t n f i b l r u b t h e b l o o d a s a n d o f  
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NOVEMBER 1927

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# INTERNATIONAL ABSTRACT OF SURGERY

NOVEMBER 1927

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### HEAD

Montgomery A H Ossifying Fibromata of the  
Jaw *A J S g* 927 30

Three cases of osteofibroma of the jaw are reported and eleven case reports from the literature are abstracted. Four of the cases reported in the literature were not characterized by the simultaneous growth of bone and connective tissue.

Many fibromata of the jaw begin to develop between the ages of 7 and 14 years. These tumors are firm smooth and circumscribed. They are attached to the bone but not to the overlying soft tissue and are not tender. Microscopic section shows the characteristic trabeculae of bone tissue separated by connective tissue.

Clinically it is difficult to differentiate ossifying fibromata from central fibromata, endosteal osteomata and hondromata. Hippel says that in the upper jaw the principal difference is that osteofibromata do not tend to narrow the nose and cause slight displacement. Odontoid cysts and fibrocystic disease of the jaw can usually be recognized in the roentgenogram. Diffuse hypertrophy and leontias ossea affect more than one bone.

Osteofibromata are benign and do not recur after their thorough operative removal. Surgery is the only treatment available.

J FR K DOLGERTY M D

### EYE

Hughes E W A Treatment for Traumatic Symblepharon *B J J Ophth* 1927 337

Butter of the lower conjunctiva from chemicals and hot metal often result in symblepharon. When once established this condition is difficult to correct. For prevention which is not always easily accomplished by the usual methods the author has devised an ingenious apparatus—a framework of silver wire with two horizontal bars connected at each end

by a loop. One bar fits into the fornix, the other outside the lid and the two loops cross over the edge. The two conjunctival surfaces are separated until healed by a small strip of goldbeater's skin placed over the bar in the fornix. The frame is held in position by adhesive. VIRGIL WESCOTT M D

Smith P On the Movement of the Intra Ocular  
Fluid as Taught by Theodor Leber *B J J  
Ophth* 97 1 63

Ophthalmic surgeons have generally accepted Leber's theory of the movement of intra-ocular fluid—a continuous flow from the ciliary processes forward through the pupil and outward at the angle of the anterior chamber—but many have lately been disturbed by various attacks upon it from the standpoint of chemical affinity, molecular concentration and electric currents. Nevertheless the author still adheres to the old theory and believes that those who reject it are relying too much on the findings of physicochemistry and attaching too little weight to clinical observation.

Smith believes that we are fully justified in maintaining that under the influence of two opposing forces the fluid moves slowly and continuously through the chambers and that the ciliary capillaries emit the fluid because their blood pressure is high enough to overcome the osmotic force while Schlemm's canal and the iris veins absorb it because there the blood pressure is lower and osmotic force prevails. GEORGE R. McARTHUR M D

Dunnington J H Concomitant Divergent Strabismus *Am J Ophth* 97 3 490

Dunnington states that myopia is not an almost constant accompaniment of concomitant divergent strabismus as is generally believed. In his opinion the divergence is due to divergence excess and convergent insufficiency. For the excess he advisesotomy of the externi and for the insufficiency prism exercises and resection of the interni. VIRGIL WESCOTT M D



tions foreign protein and typhoid vaccines have been injected subcutaneously or intramuscularly. Polyvalent stock vaccines are comparable to foreign protein inoculation. Stock vaccines made from single organisms are most valuable when the selected organism approximates the infecting bacteria.

Staphylococcal infection of the skin of the auditory canal and nasal vestibule has responded to the use of the bacteriophage of d'Hérelle. Hay has reported success in the treatment of intranasal infections with mass cultures. Fenton has obtained brilliant results with hemolytic vaccine. Material is collected from the sphenoidal recess by the use of a long platinum loop and inoculated on human blood broth and human blood agar.

**DALAND** discusses vaccination in relation to chronic tonsillitis. While the basic treatment of chronic tonsillitis is surgical, vaccination is valuable after tonsillectomy in the case of elderly persons and patients suffering from a general disease. Autogenous vaccines are to be preferred. The amount of vaccine should represent the maximum skin reaction.

In addition, acanthosis may be due to (1) error in the elution of the peptic bacteria or (2) improper preparation of the vaccine. (3) wrong dosage or (4) an unknown hidden focus of infection.

Instructions are given for the collection of material and the production of a potent vaccine.

W. M. LARON, M.D.

## NOSE AND SINUSES

**BISHOP, V. L.** A Rhinological Study of Bacterial Infection in the Nose. *Otol. Rhinol. & L.* 1917, 14.

On the basis of an extensive survey of the literature and clinical experience and study, the author has prepared an etiologic classification of the rhinitis. He divides them into two main groups with modified subdivisions. Essential asthmas have a definite relationship to foreign proteins while the intrinsic asthmas do not. The author concludes from his study that the rhinologist obtains his best results in intrinsic asthma.

Under the term intrinsic asthma are grouped the bacterial and reflex type. The nose and throat have a definite anatomic relation to bacterial asthma. In cases of reflex bronchial asthma the etiological factor may be in the nose as in hyperplastic rhinitis. To explain a certain type of reflex asthma the author reviews the histology of the nasal mucosa and the mechanism of the nasal mucus.

Bishop uses a carefully analyzed intrinsic asthma the surgical removal of foci of infection and the correction of nasal defects gave the best results. The series of cases in which all foci have been removed has often been treated successfully by shrinkage and local medication. Vaccine treatment has given indifferent results.

W. M. LARON, M.D.

**DREA, W. F.** Polypoid Tissue in the Maxillary Antrum. *N. Eng. J. Med.* 1917, 277, 341.

Drea presents an analytical report on 694 consecutive roentgenograms of the accessory nasal sinuses. Polypoid tissue in the antrum can usually be demonstrated with the X-ray. A careful technique and routine stereoscopic studies are necessary for uniform results. Acute infections usually thickens the bony wall and an antrum that has been previously operated upon presents a diagnostic pitfall.

Of a series of fifty-nine cases, clear antra were found at operation in only three. In all of these cases a diagnosis of polypoid tissue in the antrum had been made by the roentgenologist. These findings support the claim that roentgenograms will give evidence of polypoid change in most cases without the use of opaque substances. In doubtful cases an opaque substance such as lipiodol may be used. The article contains several representative roentgenograms.

W. M. LARON, M.D.

## MOUTH

**EVANS, A. and Cade, S.** Cancer of the Tongue. Preliminary Report on Radical Treatment. *B. J. S.* 1917, 3.

The authors report seventeen cases of tongue carcinoma treated by Regaud's method. The disappearance of the local lesion was so complete that they advocate radium therapy for even early carcinoma. Only squamous cells were encountered. The edematous type of lesion gave the poorest results.

The cells respond to radium regardless of karyokinetic activity. Lesions of the hypopharynx and the anterior part of the tongue are easier to irradiate than lesions of the posterior part of the tongue or the floor of the mouth as in the former the jaw is more easily protected.

The treatment is preceded by a careful antiseptic mouth toilet. The primary growth is treated first and the lymphatic gland next. After the induction of a general anesthesia the radium-containing needles are inserted into the tongue immediately surrounding the neoplasm and sutured in place with fine silk. Fine wire passed through the second eye of the needles are enclosed in a rubber tube and allowed to protrude between the lips to be strapped to the cheek. Five milligrams of radium are contained in each needle. The needles are left in place for from six to eight days. Their number varies with the size of the lesion. The total dosage ranges from 600 to 1,000 mg. hrs. A lead plate 1 mm. thick is placed between the radium and the mandible for protection. The patient is not allowed to talk. The mouth is irrigated twice daily.

The authors describe the reactions with the aid of colored plates showing the various stages of radionecrosis as also described.

In the treatment of glandular lesions the advanced infiltrating masses are irradiated only and

di case but include cases of acute sinusitis. As the patients were on the medical and surgical services the lesions were more transient and associated with less destruction of tissue and deterioration of vision than the lesions found in the eye clinic of even a very large hospital. The examinations were made during and after the course of the disease. The author classifies the cases into three groups:

1. *Toxamias of mild intensity and short course* (a) Disks normal or slightly hyperemic with vessels (especially veins) slightly dilated. The c were associated chiefly with influenza, acute rhinitis and acute sinusitis of moderate intensity. (b) Average temperature 100 degrees F. (c) Average duration from four to five days.

2. *Toxamias of moderate severity and longer course* (a) Disks rather hyperemic margins occasionally blurred, vessels definitely dilated and often slightly tortuous. These were associated with pneumonia, cerebrosinusitis, severe acute polyarthritis, typhoid, pyemia, septicur, encephalitis and meningitis (especially cerebrospinal). (b) Average temperature from 102 to 104 degrees F. (c) Average duration from one to eight weeks and occasionally longer.

3. *Toxamias of great severity*. Disks with margins blurred by edema and vessels quite dilated. The surface of the disks often fades insensibly into the surrounding retina. White streaks show the line of nerve fiber bundles. Occasionally there is retinal edema. Intracate hemorrhages may occur from the inner vessel into the retina. In two instances small white retinal areas around or near the disks were seen (retinitis septica of Roth). Occasionally edema of the disks was noted as a forerunner of a frank optic neuritis (15 per cent).

VIRGIL WESCOTT, M.D.

Pasciell, C. The Cystic Phase of Glioma (Retinoblastoma). *Am J Ophth* 1927 3 43

The author reports a case of cystic glioma in a boy 10 years of age. The cyst appeared in the anterior chamber and was removed by operation. When the diagnosis was made enucleation was urged but was refused. The boy died of recurrence and similar cysts were found also in the brain.

The article is supplemented by a drawing of the gross appearance and a photomicrograph of the type of cyst under discussion. THOMAS D. SILL, M.D.

## EAR

Fowler, E. P. Deafness in School Children. Differential Diagnosis with the Aid of Audiometer. Examination of 1000 Pupils. *Am J Otol* 1927 1 43

The data obtained from examination of the hearing of 1000 pupils in excellent health is recorded. Group testing by means of the phonograph audiometer was done. It was found that in groups of forty as many as 150 pupils could be tested in an hour. This examination was supplemented by an

examination of the ear, nose and throat, the determination of bone conduction and the use of the noise apparatus or Galton whistle. A standard questionnaire was also employed. Children showing a loss of nine or more sensation units were considered defective.

The audiograms were classified according to types and grades and a differential diagnosis was worked out on the basis of the history, the finding made by inspection and the audiogram.

The article is supplemented by numerous tables and graphs. W. M. PATTERSON, M.D.

Sturm, F. P. Tinnitus Aurium. *J. L.* 1917 1 449

The author reviews a number of his own cases of tinnitus aurium that have been relieved wholly or in part by the local use of atropin.

Factors in the production of tinnitus are discussed. When there is an extension for the labyrinthine fluid it is possible for increased pressure from the tympanum to raise the intralabyrinthine tension. Tinnitus is rare in children because the overhanging lap of bone which narrows and may finally occlude the cranial aperture of the vestibular aqueduct in later life is not present in the young child. In the adult temporal bone the path of exit for the labyrinthine fluid is of varying degrees of patency. The absence or presence of tinnitus depends upon the patency of the aqueduct and in case of high vascular cerebral fluid pressure upon the mobility of the stapes and to some extent upon the width of the window. A possible factor in the production of tinnitus may be variations in the quantity of endolymph. Oscillations in circulation to the production of tinnitus. J. U. C. W. M. PATTERSON, M.D.

MacKenzie, G. W. The Extent and Effect of the Labyrinthitis in the Absence of Labyrinthitis. Suppuration? A Case Report. *L. J.* 1927 9

MacKenzie reports a case of chronic middle ear suppuration which was followed for years by primary conservative operation as a means for the relief of the suppurative process. Six years later a radical operation for the relief of recurrent attacks of vertigo was performed. The author is reluctant to destroy the hearing but feels that in such cases it is quite justifiable. W. M. PATTERSON, M.D.

Fenton, R. A. Recent Vocal Therapy in Otolaryngology. *Am J Otol Rhinol* 1927 2 1

Dland, J. V. Vocal therapy in Otolaryngology. *Am J Otol Rhinol* 1927 2 1

FENTON quotes Wright's amendment to the original dict of Laseur on the procedure for immunization and reviews various basic bacteriological principles of the use of vaccines. Recent clinical applications of these principles are discussed.

In Eustachian catheterism has been used of late in the treatment of otitis media and in the treatment of otitis media.

phylaxis there has been an increase in iodine injuries. Even therapeutically iodine must be used with the greatest caution.

In the discussion of this paper KURTZMAN (Koenigsberg) reported upon the transplantation of thyroid by injection. He stated that no lasting effects are obtained from transference of thyroid tissue or the injection of pulp. He reported three cases in which young myxedematous cretins were treated by the injection of living human thyroid tissue. In two cases repeated injections were followed by transitory improvement in the general functions and a gain in weight. In the other case no effect was noted.

HAUMANN (Bochum) reported a case of osteopathia cretinosa scapulae. The patient a 21 year old man showed a definite cretinous habitus (infantilism of the testes etc). The roentgen picture of the shoulder joint revealed marked changes—flattening of the glenoid fossa, separation of the cartilage changes in the structure of the coracoid process and marked transparency of the bones the result of a failure in development of the bones at puberty. The roentgen picture shows also deficiencies in other parts of the skeleton. This condition was due to disturbances of internal secretion. Haumann classifies in the same group the various malacias ranging from the osteochondritis of Perthes to affections of the metatarsal bones.

SCABELL (Bern) discussed the pathogenesis of osteochondritis dissecans in endemic cretinism and reported three cases of osteochondritis of the knee joint occurring in persons with characteristic cretinoid degeneration. In the last case there was also a coxa plana (osteochondritis of Perthes). These conditions are associated with typical hypothyroid disturbances.

HALKE (Breitlau) reported on the spreading of goiter in Silicia. In the region of the plains the Oder and the foothills about 30 per cent of the school children have goiters. Of those living in the middle regions of the mountains from 30 to 50 per cent are so affected. In the upper mountains the incidence of goiter is 50 per cent. The occurrence of epilepsies of goiter in the starvation period after the war and their cessation after the improvement of nutritional conditions does not indicate a uniform cause for goiter. There must certainly be very numerous factors concerned. Among them heredity plays an important part. Halke recalled a goiter epidemic which broke out in an orphan asylum perhaps as the result of a poorly balanced diet and ceased when the orphans were transferred to another place. He has operated upon one type of goiter occurring in the young—parenchymatous form.

ORATOR (Graz) discussed goiter in the young and endemic goiter. The diffuse parenchymatous goiter described from the von Eiselsberg Clinic in 1912 as adolescent goiter is still the subject of dispute. This question is of importance because the goiter of youth is the key to the entire goiter problem. The attempt should be made to investigate not the completely

developed goiter but its earlier stages. In Styria investigations of the normal development of the thyroid gland and of the various forms of goiter revealed the occurrence of many types of thyroids. A review of the facts shows a preponderance of colloid poor parenchymatous goiters in adolescents in the endemic belt of Styria. Similar investigations of goiter free regions should be made. STETTER (Z)

Holst J. Further Contributions on the Pathology and Treatment of Toxig Goiter (Weitere Beiträge zur Pathologie und Therapie der toxischen Strumen). *Acta chirurgica Scandinavica* 1927 14: 38.

The author emphasizes the practical importance of changing the terminology for Basedow's disease and suggests the substitution of the symptomatic diagnoses primary and secondary Basedow's disease for the causal diagnoses primary and secondary thyrotoxicosis or primary and secondary toxic goiter.

The primary as well as the secondary thyrotoxicosis is accounted for usually by the development of epithelial tumorous tissue in the thyroid gland mostly of adenomatous nature. In the primary and secondary toxic goiters the adenomatous tissue is of a different nature both morphologically and functionally. In experiments on tadpoles and adenomata enucleated from secondary toxic goiters it was found that the substance or substances that give rise to the toxicemia are produced by the adenomatous tissue itself and not by the normal tissue surrounding the adenoma.

The routine method of treatment in thyroid toxicemia has been whenever possible radical resection at one sitting. In serious cases the primary thyrotoxicosis has been first treated with Lugol's solution and the secondary cases with rest. The results from preoperative treatment with iodine have been satisfactory.

In forty seven cases of thyrotoxicosis thyroidectomy was done with one death. On re-examination of thirty seven patients all were found to have been benefited. All but two are now able to do their work. Twenty six are free from clinical symptoms but only twelve have a normal metabolism.

In experiments on tadpoles secretion from the thyroid bed examined during the first few days after operation was found to contain thyroid secretion. It is therefore apparent that after the operation some secretion runs into the wound from the cut surface of the remaining part of the gland and it is probably of importance as regards the postoperative reaction to prevent the absorption of this secretion by drainage.

Kenyon E. L. The Relation of the Oral Articulatory Movements of Speech and of the Extrinsic Laryngeal Musculature in General to the Function of the Vocal Cord. *Archives of Otolaryngology* 1927 43.

The author states that the larynx hyoid bone lower jaw tongue soft palate and pharynx together

palpable glands are resected. The authors are undecided as to the advisability of treating lymphatics that are apparently uninvolved. In the treatment of the lymphatics Columbia paste is employed to hold the needles at the proper distance from the skin during the irradiation. Forty milligrams of radium are used eight hours daily for from ten to fourteen days when the lymphatics are uninvolved. Twenty tubes of 2 mm each screened with 0.65 mm of platinum at 15 mm distance are employed in these cases. The total irradiation amounts to from 3,200 to 5,400 mg hrs. In advanced or inoperable cases from 60 to 80 mg are used at 30 mm distance to the extent of from 14,000 to 25,000 mg hrs or from ten to fourteen days. Superficial ulceration with peeling, healing and subsequent pigmentation follows the latter treatment.

Seventeen case histories are reported. In every instance a microscopic diagnosis was made. The lesion, treatment, dosage, reaction and subsequent course are described.

In summarizing the authors state that of seventeen lesions sixteen completely disappeared but no claim is made as to the permanence of their disappearance. The greatest difficulty in the management of the cases is the treatment of the secondary lesions. These are probably best treated by a combination of surgery and radium.

A. JAMES LARKIN, M.D.

## NECK

Colp R. W. Treatment of Deep Infections of the Submaxillary Triangle. *Am J S* 6: 192: 157

Colp reviews the anatomy and surgical relations of the submaxillary triangle on the basis of dissected specimens.

The most common infections in this region are superficial and arise usually in the submaxillary lymph nodes. In such cases there is no involvement of the floor of the mouth.

In cases of deep suppuration extending to the submaxillary gland the patient is extremely ill. The swelling of the submaxillary region is pronounced but the overlying skin is rarely reddened. The tumor is hard and because of the dense fascial envelope rarely fluctuates. The mouth can be opened partially only with difficulty. The tongue is elevated and flaccid. In the floor of the mouth there is a tender brawny edema. These infections resemble a cellulitis and involve the sublingual, submaxillary and the retromandibular space. If the patient's condition is not materially improved by local treatment within twenty-four hours surgery is necessary. In the author's opinion the only logical surgical procedure is extirpation of the submaxillary gland through an incision in the neck, preferably a lateral incision. This operation results in cessation of the dyphagia and free drainage. The best anesthesia for all operative procedures is local anesthesia.

IRANK J. MCGOWAN, M.D.

Bucher. Questions of the Goiter Problem (Erstellung m. Kr. d. Probl. m. 5. Tag d. d. k. Ges. f. Ch. Berl. 1927)

The goiter problem is among the most interesting in the entire field of medicine because it is so closely related to other fields of knowledge. This is also the reason why all attempts to solve the problem have remained incomplete. To date attention has been centered too much upon the thyroid gland. The other endocrine glands must also be considered. We know very little as yet regarding the nature of the endocrine glands and all that we know is only a working hypothesis. We know well the extracts of these glands but the complicated processes of the changing adjustments of the different glands have been touched upon only lightly. The thyroid gland holds a prominent place among the organs of internal secretion but the belief that life is impossible without it is erroneous as is evident from persons who have no thyroid gland. The author has a patient who has lived for thirty years without a thyroid gland.

The chief function of thyroid activity is the control of iodine metabolism. It affects also other halogens. For example the calcium picture shows definite differences according to the findings in the thyroid gland. Characteristic of the thyroid is also its marked susceptibility to all exogenous and endogenous influences.

Goiters may be classified into three groups: (1) the inflammatory group, (2) the hyperplastic group and (3) the tumor group. There are also subgroups. The histological difference is much greater. The question arises as to whether goiter is an ailment or the sign of an ailment. Goiter is a symptom of Basedow disease. Endemic goiter is a symptom, a link in the endemic cretinoid degeneration (goiter-cretinism—goiter heart which differs considerably from the Basedow heart). The goiters in the Baltic provinces and in Brandenburg are not endemic goiters. The true endemic goiter is found in Switzerland in Styria and in upper Italy where occasionally the characteristic signs of degeneration are seen without the presence of a goiter. Of interest are the transitory variations in the occurrence of goiter in these lands, sometimes an increase and sometimes a decrease. In Argo is an increase to the east has occurred. A similar trend to the east has occurred also in the Silesia (one hundred years survey). The Jura has been spared. At any rate the cause are certain regions which favor the occurrence of goiter and others which do not.

As yet we do not know the cause. There seems to be a relation between the geographical distribution and the histological picture (diffuse nodular form). In the region of the Aar 50 per cent of the cases are of the diffuse type. In other regions from 80 to 90 per cent are of the nodular type.

The author is strongly opposed to iodine prophylaxis. He states that iodine is not a prophylactic. When properly used it is never itself a good therapeutic agent. Since the introduction of iodine pro-

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

Griswold R A and Jelsma F The Relationship of Chronic Subdural Hematoma and Pachymeningitis Hemorrhagica Interna A Report of Eight Cases with the Report of Finding Bile Pigment in the Hematoma *J Ch St S* 9 7

45

Recently emphasis has been placed upon chronic subdural hematoma as a definite clinical and pathological entity Putnam and Cushing in 1925 reported twelve cases and reviewed the literature The authors report eight additional cases In five of the cases there was a history of alcoholism and in three a history of trauma In two of the others a complete history was not obtainable Autopsy in all cases showed well formed hematomata in different stages of organization There was no essential difference in the pathological appearance in the cases with and without trauma and the authors believe no difference to be in the degree of organization rather than in type In some of the cases there was a high concentration of bile pigment a finding with an interesting bearing on the theory that the living cells of the meninges are potential if not normal members of the ecto-endothelial system and as such are concerned in the formation of bile pigment at least under pathological conditions

Symptoms of chronic subdural hematomata are (1) the edema to increase intracranial pressure viz headache vertigo vomiting slow pulse and choked fundi and (2) the due to localized disturbance viz paralysis aphasia convulsions etc Meningismus may occur from meningeal irritation There may be a combination of symptoms some may be fleeting or variable and atypical or incomplete The commonest is a latent period The commonest and most headache vertigo vomiting psychosis coma and death Increased reflexes spasticity of various muscles and cranial nerve involvement as meningitis The spinal fluid is usually normal may be xanthochromic or bloody

This condition should be considered in all cases presenting the series of symptoms described and surgical treatment should be instituted if it is indicated

Of the eight cases are reported The article contains photomicrographs of the gross specimens and photomicrograph *ILLUSTRATIONS BY FOR M D*

Bailey J Further Remarks Concerning Tumors of the Cerebellum Group *Br J Ch St S* 11 1354

This article may be regarded as a supplement to Bailey and Cushing's monograph on tumors of the

glioma group which was published last year The study and classification were undertaken in the hope that a more accurate understanding of these tumors might shed some light on the prognosis

The new classification and a table showing the relationship of the new nomenclature to the old in the ten major classifications recognized in the literature are followed by a brief discussion of the types with case histories and photomicrographs There are also mixed or transitional forms As it has been said that gliomata are too varied in their structure for classification the author suggests that the word grouping might be better than the term classification Some of the transitional forms studied were so closely allied to one or another group as to reasonably fall therein even though not entirely typical

Several of the seventeen tumors listed by Bailey and Cushing as atypical have been placed in one or another group after further study A table of the average survival period in the ten main groups shows a variation of from fifteen months in cases of medulloblastoma to seventy six months in cases of astrocytoma This demonstrates strikingly that gliomata are not all hopeless a large percentage of them are among the most favorable intracranial neoplasms for surgical treatment

The interest and alertness of the medical profession with regard to these tumors is shown by the fact that in Cushing's clinical half as many tumors have been verified in the last three years as in the preceding twenty years

In cases of medulloblastoma and those of spongioblastoma multiforme it is advisable to push roentgen ray therapy to the limit of tolerance

In the author's opinion it is possible to subdivide the majority of gliomata into groups with a characteristic structure to gain some insight into the reasons for their structural variability and to attach to each group a certain prognostic significance

(ILLUSTRATIONS BY ANDERSON M D)

Symonds C P Some Points in the Diagnosis and Localization of Brain Abscess *J Laryngol* 1921 9 7 44

Symonds limits his discussion to abscesses arising from suppuration of the middle ear and situated entirely within the dura mater

The important sign of the onset of an abscess in the temporal lobe and in the cerebellum is headache This is occasional and not always severe Headache vomiting drowsiness and slow pulse are the cardinal signs of an advanced cerebral or cerebellar abscess and signify an obstructive hydrocephalus Besides the intermittent headache signs of local damage caused by the abscess and a history of discharging





two thirds of the tongue diminished saliva and hyperacusis. If the paralysis develops at once after a mastoid operation the lesion is probably in the vertical bony canal. If it precedes the operation it is probably inflammatory and may clear up after mastoid drainage. Even when the nerve is traumatized it may recover spontaneously and ample time should be allowed for this. After a year not much can be expected without surgery.

The author's case was that of a man of 29 years with complete paralysis which had come on immediately after a mastoidectomy and had persisted for four months. At operation which exposed the nerve in its vertical course from the genu to the parotid gland a neuroma was found and the nerve freed in its entire course. About 8 mm was gained by chiseling away the entire vaginal process and the nerve ends were approximated without tension. The suturing was difficult because of the depth of the nerve and the narrowness of the space. A muscle pedicle graft was turned from the sternocleidomastoid to cover the suture line and fill the bony space. The patient showed signs of improvement within six months and at the end of sixteen months was as practically entirely normal. The article includes five photographs to demonstrate the return of function including perfect facial expression. After performing this operation the author found that Nev suggested it as a possibility in 1921 although he did not perform it.

ALBERT S. CRAWFORD, M.D.

### PERIPHERAL NERVES

Brickner W. M. Brachial Plexus Pressure by the Normal First Rib. *Ann. Surg.* 1917 **14**: 158.

Pressure on the brachial plexus or subclavian artery by a cervical rib or a band of fibrous tissue extending from the end of a rudimentary cervical rib may be duplicated by the pressure of a normal first rib. Many of the cases reviewed by the author had been diagnosed as neuritis, neuralgia or progressive muscular atrophy. A few were traumatic in origin but in the majority the symptoms developed spontaneously. The symptoms were often in remission or brought on by added weight in the hand or on the shoulder. In most cases the symptoms were the same as those attributed to cervical rib pressure, namely, pain or sensory disturbance in the region supplied by the lower trunk of the brachial plexus. The trunk is formed by the eighth cervical and first dorsal roots and supplies the inner part of the arm and forearm and the fourth and fifth finger. The sensory disturbance noted

was coldness and weakness of the hand and pain in the arm and forearm. Objectively the proprioceptive sensibility was more affected than the epicritic, a dislocation described by Stopford as characteristic of nerve compression.

In two cases reported by other surgeons a cervical rib was present but the pressure was due to a normal first rib and the symptoms were relieved by resection of the first rib only.

Of the six cases reported in this article three were due apparently to dragging of the plexus over a normal first rib. These were marked by pain and paresthesia and were relieved by elevation of the shoulder and exercises to strengthen the trapezius. One showed a rudimentary cervical rib on the unaffected side and an apparently anomalous condition of the articulation of the sixth and seventh cervical vertebrae on both sides. In this case also relief was obtained from elevation of the shoulder. In two of the cases the affected extremity was from 3½ to 1 in longer than the unaffected one but in another patient the unaffected side was longer.

There were two cases showing intermittent severe pain and edema of the extremity believed to be due to pressure on the plexus by a normal first rib. In one of these spontaneous recovery occurred in a few weeks. In the other a portion of the first rib was removed and the symptoms were promptly relieved but returned six months later on the resumption of rather strenuous manual activity. Other possible causes for the return of symptoms in some instances are (1) the removal of an insufficient amount of the rib, (2) callus formation or adhesions, (3) intraneural fibrosis from long continued pressure and (4) the production of the symptoms by an unknown vasomotor disturbance.

The incision which allows adequate exposure and is best for cosmetic results is a curved collar incision 12 cm in length extending from near the insertion of the sternomastoid to the trapezius and crossing the plexus. Retraction of the plexus must be frequently interrupted. A narrow beaked angular rongeur is used for resecting the rib. The scalenus anticus is cut to relieve possible pressure on the subclavian artery and the dead space is subsequently reduced by suturing the retracted portion to the undivided portion. The phrenic nerve on the scalenus anticus and the long thoracic nerve on the scalenus medius are to be identified and avoided in cutting the muscles. Drainage is unnecessary if the wound is dry. Further obliteration of the dead space is obtained by pressure with the gauze dressing.

otitis media or a mastoid operation with subsequent signs of an infection are of value in the early diagnosis.

Suboccipital headache has some importance in the early diagnosis of cerebellar abscess. A common late symptom is bifrontal or general headache. Since the cerebellar abscess is usually deep in the lateral lobe there is incoordination in the movements of the limbs on the same side. Disturbance of equilibrium and a reeling gait are later developments said to be less common. Nystagmus with a tendency toward deviation of the eyes away from the side of the lesion with the quick component to the side of the lesion is another sign of value.

In the localization of a left temporal lobe abscess in right handed persons aphasia is of outstanding value. The signs of temporal lobe abscess common to both sides are slight weakness of the opposite side of the face chiefly of the lower half, absence of or a decrease in the superficial reflexes and an increase in the deep reflexes with a positive or doubtful Babinski sign and a homonymous defect in the opposite visual fields, the quadrants affected being those which lie opposite the abscess as regards its situation in the superior or inferior bundle of the optic radiation.

In cases of localized brain abscess the cerebrospinal fluid shows an increased protein content and a moderate increase in cells, mainly in the lymphocytes. The chloride content is normal and sugar reducing bodies are present.

Superficial abscesses following otitis media or operation have been known to develop beneath the arachnoid membrane in the neighborhood of the Sylvian fissure and cause Jacksonian epilepsy.

Localized non suppurative encephalitis is the pre-suppurative stage of inflammation in the formation of a brain abscess and may become arrested at this stage. There is a doubt in the author's mind as to whether a localized non suppurative encephalitis can occur in relation to otitis media. Symonds reports three cases with physical signs resembling those of cerebral abscess. The symptoms followed otitis media and in the two cases that were operated upon no abscess was found. The third patient was watched for weeks and finally recovered without operation. CLARENCE A. BENTLEY, M.D.

Cushing H. The Meningioma arising from the Olfactory Groove and the Removal by the Aid of Electrolysis. *Lancet* 1917, vol. 3, p. 9.

Meningioma originating in the olfactory groove have been repeatedly encountered by M. C. von Cland and Cruikshank and were described by Virchow in his classical work on tumors.

Cushing says: "To know before operating not only where a growth is to be found but what its nature will be must be one's aim if he is successfully and intelligently to deal with an intracranial tumor of any kind."

Meningioma of the olfactory groove have been mistaken for various trouble including ethmoiditis, retrobulbar neuritis and disturbances of the pituitary

gland. In the diagnosis a syndrome of symptoms with a peculiar chronological relationship is of value. There is probably first a primary anosmia of one side. The second symptom is homolateral failure of vision due to primary optic atrophy caused by direct pressure on the optic nerve and the third symptom complete anosmia due to extension of the tumor. The fourth symptom is increased intracranial tension due to enlargement of the tumor with subsequent papilledema and symptoms of mental deterioration.

Recently perfected technique and instruments have made the operative treatment of brain tumors much more efficient. The means for transfusion should always be in readiness. Hemostasis is brought about by the use of silver clips or pieces of muscle cut from adjacent tissue. Blood from the wound can be collected conveniently by means of a suction apparatus and clotted to prevent laking. In case of dangerous extravasation on this blood can be transfused back into the patient. Among the instruments the electrocautery needle or knife which works on the principle of coagulation or fulguration of the tissues is greatly superior to other means of removing brain tumor tissue though as yet the electrocautery device is in the experimental stage.

CLARENCE A. BENTLEY, M.D.

Bunnell S. Suture of the Facial Nerve within the Temporal Bone with a Report of the First Successful Case. *Surg. Gynec. Obst.* 1917, vol. 7.

This is the first report of the repair of the facial nerve by direct suture in the region of the middle ear. The historical development of facial nerve anastomosis is reviewed. Faure in 1898 first performed a spirofacial anastomosis and Koerte in 1901 the first hypoglossofacial anastomosis. Since 1901 many surgeons have anastomosed the spinal accessory and hypoglossal nerves to the cut seventh nerve and recently it has become customary to suture the proximal end of the descending hypoglossi to the distal cut end of the nerve used in the main anastomosis.

The favorable results of these methods are the return of muscle tone and voluntary movement to the paralyzed side of the face and the restoration of symmetry when the face is at rest. The undesirable results are absence of emotional facial expression, atrophy of the muscles whose nerve was scarred, loss of the normal associated movements and the development of troublesome dissociated movements.

Direct suture of the facial nerve restores emotional expression and does not have the disadvantages of the other methods. Although it is technically difficult it should be attempted as it may be successful and if it fails nothing is lost and another method may be used.

The selection of suitable cases is essential. Lesions above and below the desired level can be ruled out by careful examination of the cranial nerves. Suitable cases are those with complete facial paralysis and homolateral loss of taste in the anterior

when the indications and technique become better understood  
JEROME R. HEW. M.D.

**Sauerbruch.** The Origin and Surgical Treatment of Bronchiectasis (Z. Frag. d. Entsch. n. v. d. ch. rurnsch. n. B. handl. g. on Bro. hekt. se.) 51 Tag d. tsch. G. s. f. Ch. Be. n. 927

Heretofore bronchiectasis has almost always been looked upon as a sequela of definite inflammatory processes of the lungs; only rarely has it been regarded as of congenital origin. Sauerbruch has come to the conclusion that the majority of the cases are due to congenital cystic dilatations of the bronchial tree. He offers as evidence the facts that 90 per cent of the bronchiectases are found in the left lower lobe; that there is no evidence of inflammatory disease in the exposed left lower lobe; that even on gross inspection pathological changes are seen in the bronchial tree but not in the pulmonary tissue; and that the history usually includes catarrhal conditions in childhood and a pneumonic disease is not demonstrable.

Sauerbruch reports four cases. In the first two he assumed the existence of residual empyema cavities and therefore performed a thoracotomy. It proved however that the cavities were in the lung. In the remaining three cases in the first two cases he made the diagnosis of pulmonary cysts even before the operation. The examination of the cysts revealed the same structure as that of congenital bronchial cysts (characterized by the epithelium of the bronchi with intact pulmonary tissue).

The frequent occurrence of bronchiectasis in the left lower lobe may be explained by embryological development. The lung develops from a bud from the pharyngeal tube at a time when the development of the heart is quite advanced. On the right side there is considerable room for development where the left half of the heart forms a wall and the duct of the Cuier constitutes a marked obstruction to the building of bronchi. The size of the cyst will vary according to the time at which they are formed.

Persons with congenital bronchial cysts may not be aware of the occurrence of infection. In the chronic stage a cure can be obtained only by resection of the lower lobe. Sauerbruch does this as a matter of routine.

D. FITZGERALD (Z.)

**Clifford L. H.** Bronchiectasis Associated with Disease of the Nasal Accessory Sinus. Etiology and Bronchoscopic Treatment of Bronchiectasis. *A. O. L. G. I. O.*

The author discusses the theory originally advanced by Muller that infection of the nasal accessory sinuses is the cause of certain cases of bronchiectasis. His theory maintains that infection travels from the sinuses to the bronchi either by the lymphatics which drain to the sinuses and thence to the right heart and lungs or by direct aspiration. Thereby establish a chronic bronchitis which

eventually produces weakening and dilatation of the bronchi. Muller found involvement of the sinuses in practically all cases of bronchiectasis observed by him. The author cites as confirmatory evidence the bronchoscopic finding of laryngotracheobronchitis in cases of accessory sinus infection. He believes that the clinical and experimental evidence is sufficient to warrant the acceptance of Muller's theory.

He believes also however that bronchiectasis is often due to pneumonia, influenza, foreign body, abscess, and tuberculosis.

The cases secondary to sinus disease usually have a history of productive cough from an infection in childhood or an attack of influenza. There may or may not be a history of nasal symptoms, but the nasal condition is revealed always by examination. Examination of the chest commonly shows bilateral involvement of the lower lobes and sometimes of the middle lobe. The bronchiectasis may be cylindrical or sacculated and commonly involves the terminal bronchioles.

Attention is called especially to the cases of children who have a recurrent cold and a persistent non-productive cough. Frequently such children show bronchitis. Clinical belief is that in these cases bronchiectasis will follow unless it is prevented by the treatment of infected sinuses and endobronchial medication.

All patients with bronchiectasis should be examined for disease of the accessory sinuses and if this is found should be given proper treatment. Even if the sinus condition is not the cause of the bronchiectasis it probably affects its course unfavorably.

JEROME R. HEW. M.D.

**Aschner P. W.** Embolic and Metastatic Phenomena in Pleural and Pulmonary Infections. *I. S. G. 92. 114. 4.*

The author comments upon the well recognized frequency of embolic abscess of the brain secondary to pulmonary and pleural suppuration and of cerebral embolism occurring during thoracic operations, the irrigation and drainage of thoracic wounds during simple exploratory aspiration.

Taking it for granted that these are caused by the entrance of clots or air into the systemic circulation from the pulmonary veins, he discusses the subject with regard to the following questions: 1. Do emboli from the pulmonary circulation lodge in parts other than the brain? 2. Are such emboli always septic? 3. If so, do they always result in suppurative metastatic lesions? 4. Does the occurrence of peripheral embolic phenomena in a case of empyema always indicate an underlying suppurative focus in the lung? 5. If not, how may such instances be explained?

Cases bearing upon these points are cited and the following conclusions are drawn.

The peripheral complications of pleural and pulmonary infections may be classified as embolic (dislodgment of septic or aseptic clots) and metastatic (bacteremia from a focus in the pulmonary

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

Cheattle Si G L. The Important Early Symptoms in Diseases of the Breast. *Br J Med* 1917 1: 47

This article begins with an academic discussion of the various elements of the breast structure which may undergo hyperplasia and give rise to nodules and the variety of stimuli which may occur on the hyperplasia.

The practical part of the article is concerned with the early symptoms of breast carcinoma. According to the author, the most important of these are:

1. a) Nodularity localized to one part of the breast or more marked in one part. b) A lump in the breast (without the classical and late accompanying signs of retraction of skin and glands in the axilla). He warns against mistaking nodularity of the overlying fat for nodularity of the breast proper. Excision and microscopic examination are indicated.

2. Pain. The author believes this a common early symptom and thinks that a lancinating pain in one part of the breast is a sufficient indication for exploratory operation.

3. A spontaneous intermittent discharge of blood or serum from the nipple. This may be caused by a duct carcinoma, a carcinoma deep in the terminal ducts and a muco duct papillomatosis. Since these conditions are either cancerous or pre-cancerous, simple amputation of the breast is indicated even if no lumps or nodules are palpable.

4. Gradual retraction of the nipple. This is an indication for exploration. *Jeune R. H. D. M. D.*

## TRACHEA LUNGS AND PLEURA

Holman E. Tuberculous Pulmonary Suppuration. Clinical and Experimental Considerations. *Arch Med* 1927 27: 327

Holman reviews the history and rationale of the surgical treatment of pulmonary tuberculosis and reports the results of experiments in the production of pulmonary tuberculosis in dogs.

Carson of Liverpool in 1821 was the first to suggest that the healing of tuberculous pulmonary lesions might be facilitated by collapse of the lung by artificial pneumothorax or by the resection of ribs. Not until 1882 was artificial pneumothorax first covered by Forlanini and successfully applied. De Cereville in 1885 was the first to attempt to secure rest and collapse by resection of ribs. He removed segments of the second and third ribs anteriorly to effect the collapse of large apical cavities. Brauer and Friedrich recognized the necessity for more extensive resections.

In 1895 Courdel showed experimentally that the most effective method of narrowing the thoracic

cavity is the removal of sections of the ribs posteriorly as far as the tips of the transverse processes of the vertebrae. Wilms in 1914 made use of this principle and resected posterior segments of the first to eleventh ribs inclusive through a long paravertebral incision. Sauerbruch adopted this operation and performed it in two stages and preceded it in many instances by retraction of the phrenic nerve, an operation first done by Stuerz in 1911 for tuberculosis of the lower lobe.

These three procedures artificial pneumothorax, the extrapleural thoracoplasty of Wilms and extraction of the phrenic nerve have become the accepted methods in the surgical treatment of pulmonary tuberculosis. The principles underlying all of them are collapse and rest which decrease the absorption of toxins and favor the fibrosis of active lesions and the healing of cavities. The first accomplishes it by collapsing the lung away from the chest wall, the second by allowing the chest wall to fall in upon the lung and the third by paralyzing and elevating the diaphragm against the lung.

Artificial pneumothorax is indicated in all predominantly unilateral cases of pulmonary tuberculosis which do not yield readily to routine rest therapy. The disadvantages of this method are that the necessity for frequent refill, the possibility of reactivation of the process on re-expansion of the lung, the development of serous effusions in 50 per cent of the cases and of purulent effusions in 5 per cent and the fact that pleural adhesions prevent its application in many cases in which collapse is indicated. It is applicable however in many acute cases in which the condition of the patient contraindicates thoracoplasty.

With thoracoplasty the best results are obtained when the lesion is of the productive fibrotic type. The operation is indicated in the following groups of cases: (1) those in which fibrosis and cavitations are predominantly unilateral and pneumothorax cannot be established; (2) those in which pneumothorax is impossible and frequent serous hemorrhage occurs; (3) those in which pneumothorax has become complicated by an empyem; and (4) those in which pneumothorax is effectual as long as it is maintained but recurrence of the disease occurs whenever the lung is permitted to re-expand.

Of 150 patients subjected to thoracoplasty who were studied by Alexander 36 per cent were cured, 24.4 per cent were benefited, 10.4 per cent were not benefited, 0 were made worse and 3 per cent died within the first 6 months after the operation. It is particularly interesting that all the patients would have died if the operation had not been performed. The author believes that the results of the treatment will be considerably improved

until the electrode comes into view. This produces necrosis of the growth so that the lumen becomes large enough for the passage of ordinary foods. The author states that by this procedure life can be prolonged and made comfortable and a gastrostomy avoided. He has used the method for 10 years but does not report the number of cases treated. It is not applicable unless the constriction is annular.

HADFIELD describes the pathological picture seen in the oesophagus of a patient who died seventeen days after being treated by diathermy as described. Death occurred from sudden cardiac failure and was not in any way the result of the treatment.

The diathermy had destroyed the mass of carcinomatous tissue seen during life to project into the lumen of the tube and there was left a granulating ulcer the surface of which was on the same level as the normal mucosa above and below. No stricture was present. The effect of the treatment on the muscle underlying the growth was to cause a wide spread inflammatory reaction which in some places had almost buried the carcinomatous infiltrations with inflammatory cells but in other places had left them practically unaffected.

SOUTTAR states that the oesophagus is the site of 4 per cent of all malignant lesions. The annual mortality in England and Wales from this condition is 1600 deaths, 1200 of which are those of males. The problem of treatment and alleviation is therefore important. In men cancer of the oesophagus is a disease of later life occurring in 96 per cent of the cases after the age of 45 years and in 88 per cent after the age of 50 years and being most common between the age of 65 and 70 years. In women the incidence of the lesion is highest between the ages of 40 and 55 years and 9 per cent of the cases are those of patients under 40 years of age. In women the site of the growth is more commonly at the upper end of the oesophagus whereas in men it is at the lower end.

The growth is usually a squamous cell epithelioma but there is a rarer medullary form arising from the gland and a still rarer columnar type which usually extends upwards from the cardiac end of the stomach. All of these spread by the lymphatics and tend to grow round the lumen and cause stricture. They may involve as much as 6 in of the tube.

From his study of the pathology in fifteen cases which came to autopsy the author concludes that rather than a disease of low malignancy as is generally believed carcinoma of the oesophagus is highly malignant and fails to produce widespread metastases only because the local growth involves neighboring vital organs so quickly. He believes that in most instances the condition is beyond surgical cure soon after the appearance of symptoms. In eight cases in which the average duration of symptoms ranged from four to seven months the causes of death were as follows: of the lungs in four, perforation of the bronchus in three, perforation of the stomach in three, perforation of the aorta in one, hæmorrhage from the growth in one.

subphrenic abscess in one, metastases to the brain in one and exhaustion and pneumonia in four.

These findings have led Souttar to conclude that surgical cure is out of the question. For palliation he has devised a method of intubation with a flexible silver wire tube which is inserted through the oesophagoscope. With the tube in place the patient can continue to swallow ordinary foods until death from the natural course of the disease.

In fifty cases there was a mortality of 4 per cent. The mortality following gastrostomy in twenty cases was over 30 per cent (seven deaths).

JEROME R. HEAD, M.D.

## MISCELLANEOUS

Committee of the National Tuberculosis Association. Report on Clinical and Roentgen Ray Findings in the Healthy Adult Chest. *Am J Röntgenol* 1927 xvii 57.

Following the report of the Committee of the National Tuberculosis Association on the chest of the healthy child in 1922 the same committee was requested to continue their study on the healthy adult chest. The committee consisted of H. K. Pancoast and H. R. M. Landis of the University of Pennsylvania, F. H. Baetjer and C. R. Austrian of the Johns Hopkins University and H. K. Dunham and Roger Morris of the University of Cincinnati.

The internist members of the Committee submitted 280 persons with clinically healthy chests to the roentgenologists of the committee for study. For purposes of comparison these persons were divided into two groups: those between 18 and 30 years of age being placed in one group and those who were older in the other group.

It was found that calcification of the costal cartilages and scoliosis of mild degree have no significance and that in emphysema and deep breathers the ribs are no farther apart but come off from the spine at more nearly a right angle and are more nearly horizontal.

The right dome of the diaphragm is about 1.5 cm higher than the left in full inspiration. Regular inequalities or waves in a dome of normal level are due to different levels of attachment. Inequalities of the upper surface of the liver may prove an exception on the right side. Sharp peaks are due to abnormal attachments such as pleural adhesions.

The top of the aortic shadow was found to reach a level lying between the fourth and the sixth thoracic vertebrae and in two thirds of the cases to be at the level of the body of the fifth vertebra. A description of the level of the bifurcations of the trachea should be that of the carina. This was found to vary between the bodies of the fifth and seventh thoracic vertebrae. In about two-thirds of the cases it was at the level of the sixth vertebra. The outer boundary of the hilus shadow is rather uncertain but roughly it is regarded as extending to a line limiting the inner zone or third of the lung.

veins) The embolic complications may be septic or aseptic. They may occur in both suppurative or non suppurative lung infections but are more common in the latter. They are referable to thrombotic and phlebotic lesions of the pulmonary veins. They may involve not only the brain but also the arteries of the extremities. They may involve the spleen and the kidneys. In cases of empyema the embolic complication should be referred to the underlying pulmonary disease rather than to the empyema. In all of sixty nine cases of empyema coming to autopsy inflammatory lesions were present in the lungs.

Metastatic infections of the soft parts, joints, epiphyses and flat bones occur in pleural and pulmonary infections.

The clinical observation of the association of embolic phenomena with hæmoptysis and post operative hæmorrhage is in accordance with the postmortem evidence of vascular lesions in the lung parenchyma as the underlying causative factor of such phenomena.

JEROME R. HEAD, M.D.

Allen D. S. The Etiology of Empyema. Haematothorax in Idiopathic and Postoperative Empyema. *Surg. Gynec. & Obst.* 927 xl 3

It has been noted that experimental contamination of the pleural cavity by the injection of a bacterial suspension seldom produces empyema. Other factors seem to be necessary for the production of this condition. The rôle of the closed pneumothorax has already received due attention but the significance of the hæmothorax following a clean thoracotomy has failed to receive sufficient consideration.

The author first noted the importance of a remaining hæmothorax in the causation of empyema during an experimental series of transpleural cardiac operations. In subsequent experiments he found that the injection into the pleural cavity of the hæmolytic streptococcus with a small amount of blood resulted in empyema in every instance whereas when merely the bacterial suspension was injected the incidence of empyema was much lower. A similar series in which an unattenuated *Pneumococcus III* was used resulted in the same findings. A total of 150 experimental observations is recorded in this series. In forty experiments in which the pleural cavity was contaminated by virulent bacteria in the presence of a hæmothorax empyema developed in 100 per cent. Of twenty-four control animals in which the same bacteria were used without a remaining hæmothorax only 12 per cent developed empyema. When only very slight hæmothorax is associated with the presence of bacteria the incidence of empyema is usually lower.

The author is of the opinion that idiopathic empyema following pneumonia is due to the intrusion of blood into the pleural cavity as the result of the rubbing together of the inflamed pleural membranes or the rupture of small vessels by coughing. The green color of early cases of pneumococcal empyema is due to a deposit of hæmoglobin of the

red blood cells—methæmoglobin. At autopsy following pneumococcal empyema the pleural cavity is frequently found covered with granulation tissue and shows the presence of gross blood. The author concludes from this that idiopathic empyema may be ushered in by a spontaneous hæmothorax which becomes infected with the pneumococcus or staphylococcus.

RO. ERICK. V. G. & C. 31 D

## ESOPHAGUS AND MEDIASTINUM

No. 1611. S. A. Case of Esophagus and Peptic Ulcer. *Id. Brit. Med. J.* 927 l 36

A man 44 years of age had been troubled for ten years with indefinite abdominal symptoms as occasioned with vomiting and malaise and recently had shown signs of progressive anemia which was verified by examination of the blood. Suddenly he was taken ill with clinical symptoms resembling those of peritonitis due to the perforation of a gastric ulcer.

A laparotomy was performed but the findings were negative. The patient died after having been ill for about sixteen hours. After the operation the pre-operative symptoms persisted and during the last few hours there were in addition pains in the chest and subcutaneous emphysema of the chest and neck.

Autopsy revealed in the esophagus just above the cardiac end a large ulcer which had perforated into the mediastinum and the left pleural cavity. The pleural cavity contained air and entricular fluid.

Microscopic examination showed the ulcer to have the typical appearance of a peptic ulcer with chronic as well as acute inflammatory changes. At the edges of its base the stratified epithelium which normally covers the esophageal mucous membrane was lacking and there were cardiac glands and typical fundus glands with columnar and hydrochloric acid producing cubical cells.

In the author's opinion this structure of the mucous membrane plays an important part in the production of peptic ulcer of the esophagus. His assumption is supported by cases reported in the literature in which islands of gastric mucous membrane were found in peptic ulcers of Meckel's diverticulum.

Wright A. J. and H. H. H. G. Carcinoma of the Esophagus. Treatment by Diathermy. *B. J. Surg.* 1917 1

Soutta H. S. The Treatment of Carcinoma of the Esophagus. Based on 100 Personal Cases and Eighteen Postmortem Reports. *B. J. Surg.* 1917 76

Wright describes a method which he devised for the palliative treatment of carcinoma of the esophagus with diathermy. Under direct vision through the esophagoscope especially constructed bougie fitted with a diathermic electrode passed beyond the stricture and introduced until it fits snugly against the lower limit of the latter. The current is then turned on and the bougie drawn steadily out

# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Rosenblatt M S and Cooksey W B Muscle Fascia Suture in Hernia *J N S* 1921  
1 xvi 71

In the literature of hernia the advisability of suture of muscle to white fascia is questioned. When this was done experimentally in dogs firm union resulted in all cases in which the areolar tissue was removed from the muscle and fascia before the suturing.

The general type of union is the same as that between fascia and fascia.

In hernia it is not always necessary to suture muscle to fascia but when indicated such a suture may be relied upon if the areolar tissue is first removed. SAMUEL KAM M.D.

Dewis J W and Miller R H Hernia through the Foramen of Winslow Report of a Case with Reference to Thirty Three Other Cases Collected from the Literature *S J Gy* 1920  
1 97 1 95

Hernia through the foramen of Winslow is a rare condition there being only thirty three cases reported in the literature. The etiology is debatable but in the reported cases there was usually enlargement of the foramen associated with undue mobility of the intestine. The symptoms which are generally acute are epigastric pain vomiting obstipation and rapid tumor enlargement.

The author's case with a history of symptoms of eventration suggests the possibility of postoperative reduction and herniation at intervals with symptoms of intestinal obstruction. The condition demands acute surgical interference preceded by gastric lavage. Treatment from belated procedure is usually with or without apiration of the bowel contents is used to reduce the hernia. Distention of the foramen of Winslow may be alleviated.

The author mentions that the authors patient in an interval period was not suggestive of the condition. R. LESTER CRAWFORD M.D.

Bohn E On Fibromatoma in the Mesentery *J N S* 1921  
1 11 1921 97 1 135

The author reports a case of fibrosarcoma of the mesentery weighing 22 kgm which developed in the transverse mesocolon and were not connected with the intestine or any other organ containing intraluminal tumor.

The patient a girl 20 years of age recovered from the operation for the removal of the tumors and ten months later gave birth to a child weighing 3.9 kgm.

## GASTRO INTESTINAL TRACT

Martin Yvan Bréchet Mouchet and Fredet Hypertrophic Stenosis of the Pylorus (Review) *Soc. de Ch.* 1921  
927 324

MARTIN reviews twenty-one cases of hypertrophic stenosis of the pylorus. Twenty of the patients were males. The age of the patients ranged from 28 to 69 days. The clinical and x-ray diagnosis was confirmed at operation in every case. Chloroform anesthesia was used in the first cases and Schleich's mixture in the others. Gastric lavage with Vichy water during the first forty-eight hours after the operation as recommended by Fredet was done in six cases but did not seem to improve the postoperative course and led to suffocation accidents.

In the first nine cases Martin made a midline incision in the upper part of the abdomen. The distended stomach could be largely exteriorized. In the other cases he made a very high paramedian incision on the right side beginning on the lower thorax. The peritoneum was incised over the liver. The olive shaped pylorus just under the gall bladder was easily dissected with the aid of forceps without grasping the pylorus with the fingers. The small intestine and the transverse colon were not seen. The abdomen was closed in one layer with silk. Martin has never seen a pylorus requiring gastroenterostomy.

The operative complications in these cases are hemorrhage opening of the duodenal mucosa and evisceration. Bleeding is not always manifested at operation and can be largely prevented by limiting the operative procedure to the avascular zone. A little ooiling from edematous muscle can be controlled by one or two sutures. When the duodenal mucosa is opened—a serious accident—it should be closed. In two of Martin's cases in which this occurred recovery resulted. Evisceration is best prevented by making a high incision on the liver or using Ombredanne's technique.

In most of Martin's cases there was postoperative fever. Three patients died—one after twenty-seven hours with bloody fluid in the peritoneal cavity, another after six hours and the third after nineteen days with bronchopneumonia, purulent vagi, axillary abscess and persistent vomiting. The third child was one of twins and was bottle fed.

A favorable prognosis depends chiefly on early operation performed within eight to ten days after the onset of the condition. In cases in which operation is performed late the prognosis is less favorable especially if the infant has lost one third its birth weight.

field The extent of the hilus shadow from above downward is approximately two interspaces and a rib on the right side and slightly less on the left side

The trunk shadows were commonly found to be come more prominent with advancing years This is an increase in density rather than in width It was generally agreed that thickening or increased prominence of the trunks to the apices is unusual in the healthy chest

Calcifications were almost always noted in one or both hila In the absence of evidence of pulmonary disease they were disregarded except as evidence of past infection The so-called inverted comma was also frequently found and was usually on the right side It is a normal appearance never representing a pathological condition

The lateral view of the chest showed that the anterior border of the heart shadow is in contact with the anterior chest wall for a variable distance from below upward The heart shadow was superimposed upon the shadow of the anterior half of the diaphragm In the posterior cardiophrenic angle there was a faint shadow which was probably a composite one produced by the inferior vena cava

the phrenopericardial ligaments and possibly also some fluid contained in a cul-de sac This cul-de sac is slightly to the left of the midline and formed by a reflection of the posterior pericardium at the posterior inferior aspect of the heart The posterior costophrenic sulcus is from 6 to 8 cm lower than the anterior in thin persons and about 4 cm lower in stout persons The right bronchus is anterior to the left The distance between the ascending and descending arches of the aorta increases with age

The following recommendations and suggestions are made to roentgenologists

1 The term dome of the diaphragm should be used in preference to diaphragm to describe the curving shadow cast by that muscle

2 All measurements made for the location of the apex or size of the heart should be made from the midline of the body

3 An idea of the depth of the hilum as well as its length and width should be acquired from stereoscopic or lateral view study

4 Familiarity with the lateral view of the healthy chest is an excellent basis for the recognition of pathological changes CHARLES H HEACOCK MD



Morton C B Observations on Peptic Ulcer  
A S G 1927 LXXIV 879

Some of the previous work on autoplasmic transplantation of patches of jejunum into the walls of the stomach and on the experimental production of peptic ulcers reviewed.

Twenty-one experiments on dogs are described in which patches of jejunum with intact mesenteric circulation were transplanted into the wall of the stomach at various points and observed for periods as long as four hundred and nineteen days. All of the patches except one remained in normal condition. In the one exception a chronic peptic ulcer developed in a patch in the lesser curvature of the stomach.

In thirteen experiments patches that had remained normal for long periods up to four hundred and nineteen days were subjected to the acid alkali imbalance in the stomach resulting from surgical duodenal drainage. The patches were in various regions of the stomach. Except for a superficial erosion which developed in a patch in the anterior wall of the stomach ulcers developed only in patches in the lesser curvature. Typical chronic ulcers developed in three of five patches in this situation.

The acid alkali imbalance in the stomach and a latent intestine resulting from surgical duodenal drainage and the relatively exposed position of the lesser curvature in relation to trauma in the emptying process in the stomach are suggested as being important factors explaining the presence and site of the ulcers found in the experiments. The possible relation of these factors to clinical problems mentioned.

Bruett H Bacteriological Points of View on the Problem of Resection of Perforated Gastric and Duodenal Ulcers (Bakteriologische Gesichtspunkte der Resektion der perforierten Magengeschwüre) *Chirurgia* 1927 97

Bruett is of the opinion that in late cases of perforated gastric and duodenal ulcer the cause of the higher mortality is not the longer duration of the peritonitis but the difference in its character as compared with early peritonitis. In this he agrees with Loehr. From his experience Bruett concludes that peritonitis occurring in the first ten to twelve hours is of a relatively harmless nature in the great majority of cases its prognosis being good as compared with that of other types of peritonitis. When operation is performed at the right time. He recommends radical procedures in early cases not only because of this fact but also because he has found that conservative operations result in a permanent cure in only 42 per cent of the cases and a recent examination of patients has shown that the disturbances occurring after gastroenterostomy are due not to adhesions as Naumann and others believe but to new ulcers and peptic ulcer of the jejunum. Accordingly there is no doubt that even

in cases of perforated ulcer resection is the operation of choice. It must now be determined whether and under what conditions this operation may be performed without injury.

Bacteriological examination of the abdominal exudate explains why such a radical operation as resection is to be recommended in early cases. Of 112 cases of perforated ulcer treated by the author in the six years from 1920 to 1926 resection was performed in fifty-five with eight deaths a mortality of 14.5 per cent while gastroenterostomy with simple suture was done in fifty-seven cases with thirty-one deaths a mortality of 54 per cent. The total mortality in these 112 cases was therefore 34.8 per cent thirty-one deaths. The higher mortality in the cases treated by the simpler operation is explained by the fact that resection was done only in the more favorable cases whereas gastroenterostomy was done in the late cases.

When resection was performed in the first six hours after the perforation the mortality was only 3.8 per cent practically the same as that of resection for chronic ulcer. In fourteen cases in which resection was done between the sixth and twelfth hours after the perforation the mortality was 14 per cent (two deaths). In cases treated by gastroenterostomy within the first six hours after the perforation the mortality was 2 per cent (three deaths in eleven cases) and in those so treated between the sixth and twelfth hours after the perforation it was 20 per cent (four deaths in fourteen cases). The higher mortality following gastroenterostomy in the early cases (between the first and sixth hours after perforation) explained by complications—severe hemorrhages occurring before during and after the perforation and after the operation. It is to be particularly emphasized that peritonitis was not the cause of death in these cases.

When resection was done twelve hours after the perforation the mortality was 30 per cent (four deaths in twelve cases) whereas when gastroenterostomy was done after the same lapse of time the mortality was 68 per cent (fifteen deaths in twenty-two cases). In cases in which the time since the perforation was not determined the mortality of resection was 33 per cent (one death in three cases) and that of gastroenterostomy was 90 per cent (nine deaths in ten cases).

Of great interest was the determination that the prognosis depends to a considerable degree on the bacteriological findings in the abdominal exudate. In sixteen cases treated by resection and five cases treated by gastroenterostomy with no deaths the exudate was sterile. In twenty-one cases treated by resection with three deaths and in eleven cases treated by gastroenterostomy with four deaths green producing streptococci were found in pure culture. In one fatal case treated by resection and in eight cases treated by gastroenterostomy with six deaths hemolytic streptococci were found. In one of the latter eight cases they were obtained in pure culture but in seven (in which



should be carried out in the anterior position and combined with jejunojejunostomy.

After the operation no food should be given for several days. Fluids should be administered by hypodermoclysis and if necessary intravenously. Lavage of the stomach is desirable even as a routine on the first day.

The operative mortality is much improved by pre-operative care and by co-operation with the physician. To illustrate this fact reference is made to a series of forty six consecutive cases of partial gastrectomy for cancer of the stomach with one death and to 128 cases of cancer treated by partial gastrectomy in 1926 in which there were eight deaths.

The end results in the series of 1,000 cases are discussed. Of the patients without lymph node involvement 52 per cent were alive at the end of three years whereas of those with such involvement only 19 per cent survived that long.

**Bothe F A. Lymphatic Involvement in Cases of Carcinoma of the Pyloric End of the Stomach.**  
*Surg. Obst. Gynec.* 1927, 44: 751.

The author has studied 100 cases of carcinoma of the pyloric end of the stomach with involvement of the perigastric lymph nodes in which a portion of the stomach including the growth had been resected. There was no evidence of metastasis to more distant lymph nodes or adjacent organs. In every case the infected neoplasm the affected perigastric lymph nodes and the case records were studied. These cases lie between those without metastasis and those with such extensive metastasis that cure is impossible.

The size, type and situation of the growth and the site and relative size of all of the lymph nodes were noted.

In the 100 specimens examined 824 lymph nodes were found. Eighty five per cent of these were determined to be carcinomatous. Those situated close to the entrance of the coronary vessels in the lesser curvature and those close to the pylorus in the greater curvature were found to be involved most consistently. The nodes on the lesser curvature were affected in 91 per cent, those on the greater curvature in 69 per cent and those on both curvatures in 60 per cent. The size of the nodes seemed to be in no definite relation to their involvement. In twelve specimens the largest nodes observed were not affected whereas smaller ones were. In thirty eight specimens nodes were found which although not affected were considerably larger than some in the same specimen that were affected. The author noted in agreement with other that carcinoma cells are found in the peripyloric spaces even in the lymphatic involvement.

More than half of the growths were found on the lesser curvature and about one third were annular and situated just above the pylorus. The posterior wall and the greater curvature are affected in relatively few cases. The situation of the growth

does not always determine the site of the lymphatic involvement as there were a number of cases in which a growth on the lesser curvature was associated with relatively greater involvement of the nodes of the greater curvature. It is apparent also that the site of the growth did not determine the extent of the lymphatic involvement.

**Perman E. The Acidity in the Stomach After Gastro Enterostomy and Resection.**  
*Acta Chir. Scand.* 1927, 121: 465.

A gastric fistula is a valuable aid in operations on the stomach. It decreases the danger of leakage by relieving the tension exerted on the suture line by stagnating ventricular contents. The patient is allowed to take fluids by mouth. Nausea and vomiting are prevented. It is never necessary to introduce a stomach tube by mouth.

The author reports cases of gastric operation with fistula in which the acidity was determined. In thirteen cases in which gastro enterostomy was performed he found high values immediately after the operation. In several instances these were higher than in cases in which gastro enterostomy was not done. This proves the inability of gastro enterostomy to reduce the acidity of the stomach. In seven cases of resection of the prepyloric portion of the stomach there was an efficient production of hydrochloric acid. In two cases in which a large portion of the corpus was resected the acidity was greatly reduced.

As the loss of hydrochloric acid through the fistula is associated with the danger of gastric tetany it is necessary to estimate this loss and compensate for it by administering sodium chloride solution.

**Dolozynski. The Postoperative Roentgen Picture (Das postoperative Röntgenbild).**  
*51 Tag. d. dtsch. Ges. f. Chir. Berlin* 1927.

One hundred patients who were operated upon on Meyer's service by the Billroth II method with the Reichel modification were re-examined roentgenographically after four or five months. In none of the cases did a peptic ulcer develop. In a few cases there were symptoms due to the small size of the stomach. In only two cases was the emptying of the stomach retarded in the others it was always accelerated. In three cases the emptying was pathological, the evacuated gastric contents being regurgitated after a time. In order to relieve the patients of their symptoms the afferent loop was released and an entero anastomosis was done.

In the discussion of this report STAHNLE (Wuerzburg) emphasized the fact that attention must be paid to the cleft in the mesocolon. He has usually observed that after resections of the stomach there is formed a sphincter like occlusion which prevents too rapid emptying of the gastric contents. The danger of peptic ulcer is especially great when too little of the stomach is removed.

KIRCHNER (Koenigsberg) reported that in X-ray examinations of the stomach made as soon after the

there were four deaths) they were found with hæmolytic streptococci and green producing staphylococci. In one case treated by resection with recovery non hæmolytic streptococci were found. In five cases treated by resection with two deaths and in seven cases treated by gastro enterostomy with three deaths colon bacilli were obtained in pure and mixed cultures. Yeasts in pure culture were found in two cases of resection with recovery and in one case treated by gastro enterostomy with recovery. Other bacteria—gram positive aerobic bacilli staphylococci and streptococcus mucosus—were found in two cases treated by resection with one death and in four cases treated by gastro enterostomy with two deaths. In twenty four cases no bacteriological examinations were made. In four cases treated by gastro enterostomy with one death pneumococci were present.

From these findings the author concludes that peritoneal infection with green producing streptococci is not without importance even when the peritonitis is mild. In twenty one cases of this type in which resection was done there were three deaths—two from peritonitis and one from pyelophlebitis with liver abscesses after four weeks (no bacteriological findings at autopsy). One of the deaths from peritonitis was that of a patient 49 years of age whose resistance was poor. In eleven cases with green producing streptococci which were treated by gastro enterostomy there were four deaths. In these cases there were complications (severe anemia after ulcer hemorrhage) but peritonitis was also responsible for the fatal outcome. In a case of forty eight hours duration only green producing streptococci were found.

Infection with hæmolytic streptococci is serious. In eleven cases there were six deaths. These included two cases operated upon from six to twelve hours after the perforation with one death and six cases of longer duration with five deaths.

Yeast infection always proved harmless. Streptococcus mucosus infection was fatal. Anaerobic streptococci and anaerobic gram positive bacilli were also discussed.

In contrast to Loehr the author found a few colon bacilli in 35 per cent of the exudates that were otherwise sterile and in 46 per cent of those yielding green producing streptococci from one to six hours after the perforation also in mixed infection with yeasts staphylococci etc. Of sixty five cases in which a bacteriological examination was made from one to twelve hours after the perforation he found colon bacilli in five. One of the latter cases was fatal.

In the cases which were operated upon from six to twelve hours after the perforation Bruett found a sterile exudate in only 26 per cent. About half of these cases yielded green producing streptococci in pure culture and 17 per cent showed an increase in colon bacilli. Of the cases more than twelve hours old only 7 per cent had a sterile exudate. In the late cases green producing streptococci were ob-

tained in pure culture in 2 per cent and with other bacteria not infrequently. Very striking was the presence of colon bacilli which the author agrees with Loehr reach the stomach from the lower intestine as the result of peritoneal paralysis of the intestine.

With regard to the great sensitivity of the hæmolytic streptococci to acid Bruett differs from Loehr. Bruett found that the streptococci will grow in a nutrient medium with the acidity of normal gastric juice (0.3 to 0.4 per cent). He was not able to find free hydrochloric acid in the abdominal exudate.

In conclusion Bruett refers with regard to the green producing streptococci found by him to a recent publication with Lehmann in which the opinion is expressed that these organisms which are discovered so frequently in the mouth stomach and duodenum and also not infrequently in the bile passages are not a single strain but probably include the lactic acid streptococcus enterococcus and streptococcus viridans.

Bruett's work is a valuable bacteriological contribution and offers further support of Loehr's theory that the prognosis of perforated gastric ulcer is not a technical but a biological problem. It depends upon the bacterial contents of the abdominal exudate which is dependent upon the acidity (hydrogen ion concentration) of the stomach at the time of the perforation and may change qualitatively and quantitatively with variations in the acidity.

LOEHR (Z)

Balfour D C and Hargis E H. Cancer of the Stomach. *Am J Surg* 1927 cl vi 773

The authors review the general problem of cancer of the stomach on the basis of a series of 1,000 cases. In the early course of the condition a change in the gastric acidity and the occurrence of symptoms of obstruction are inconstant. Roentgen ray examination is an almost infallible method of diagnosis and should never be omitted.

Unless there is clear evidence of metastasis operation is justifiable. Exploration at least was undertaken in more than half of the cases reviewed and in almost half of these the growth was removed. Obesity, anemia, rapid loss of weight and youthfulness of the patient add to the risk of operation and diminish the prospect of cure.

The liberal administration of food and fluids combined with rest in bed and the intravenous use of sodium chloride and glucose before operation tend to reduce the risks and enhance the prospects of a good result.

Regional anesthesia will suffice for incision and exploration but general anesthesia is necessary for a difficult resection especially if the patient is apprehensive.

The types of resection are discussed. Of the methods of restoration the continuity of the gastrointestinal tract the authors prefer gastropyloric anastomosis. When the gastric stump is small this

closed as one layer around a drain from the cul de sac of Douglas with bronze sutures.

Except for suppuration in the lower third of the wound and sloughing of a piece of aponeurosis the postoperative course was uneventful. The patient recovered completely and returned to work. The specimen showed no obstruction to account for the intussusception.

Case 2 was that of a woman 38 years of age who after fifteen day period of difficulty in defecation developed abdominal colic with vomiting and intermittent diarrhoeic stool which lasted for several days. At the time of examination the abdomen was soft the temperature 37.6 degrees C and the pulse 80. The pain which was limited to the right side of the abdomen was most intense above McBurney's point where a mass 10 fingerbreadths wide and 8 cm long could be palpated. The tumor had some lateral movement. The passage of a black bloody stool led to the diagnosis of intussusception. The colicky pain in the umbilicus radiated to the right iliac fossa. The abdomen was only slightly distended. The temperature increased to 38.3 degrees C and the pulse to 110.

Operation revealed in the ileum which was invaginated half way up the ascending colon without invagination of the caecum or appendix. An ileo ileal intussusception about 10 to 15 cm from the ileo caecal valve. The invaginations were reduced. No causative factor was found. Two small gangrenous areas were turned in under sutures and the rather mobile caecum was fixed by suturing the external band to an incised peritoneal surface.

Recovery which was ultimately complete was delayed by a slight pulmonary complication. The bowels moved spontaneously on the third day but the patient remained slightly constipated and cardiac extrasystoles were noted.

Case 3 was that of a man aged 4 years who gave a history of nausea vomiting and abdominal pain localized in the epigastrium and right hypochondrium for 10 days. The abdomen was motionless during respiration and retractile. Palpation caused acute pain slightly above McBurney's point. The abdominal wall as soft in the right iliac fossa but distinctly contracted in the region of the upper right rectum. The temperature was 38.8 degrees C and the pulse 90.

Exploratory operation revealed free non-fetid fluid in the peritoneal cavity. The appendix had an inflamed bulbous tip and contained pus. Its base was indurated. The wall of the caecum which was drawn from a high position was oedematous and indurated especially externally and showed a depression above the induration. An intussusception of the caecum and appendix into the ascending colon was reduced but was easily reproduced by slight pressure on the base of the caecum. The ileum had entered the colon. After appendectomy the caecum was fixed posteriorly to the parietal wall by four linen stitches. Recovery was uneventful.

It could not be determined whether the appendicitis was primary or secondary. In Houdard's opinion the caecum would have been fixed better by suturing it in two rows to a posterior quadrilateral area denuded of parietal peritoneum.

The authors conclude that an abdominal syndrome suggesting appendicitis and associated with an urgent desire for defecation should suggest intussusception. If such colics are accompanied by diarrhoeic or bloody stools the diagnosis is more certain. The absence of melana does not eliminate intussusception. The local signs are those of appendicitis situated high with pain on pressure and intestinal contraction. Especially in the cases of fat patients it is not always possible to palpate a tumor. Whenever there is doubt operation should be performed.

In the discussion of this paper Riché reported the case of a man 20 years of age with an abdominal syndrome characterized especially by distention. Megacolon was suggested. After nine days the distention increased vomiting occurred and blood appeared in the stools. A diagnosis of intussusception was then made.

At emergency operation performed through a low midline incision under spinal anaesthesia a discolored intussusception 20 cm long was found. This was resected. A disinvagination was impossible. End to end anastomosis was done and the abdomen closed without drainage.

Recovery was simple and complete. The specimen showed invagination in three cylinders.

WALTER C BURKET M.D.

#### Oferson H. An Experimental and Clinical Study of the Postoperative So Called Paralytic Ileus. *British Medical Journal* 1935; 1: 45.

The motor functions of the stomach and small intestine are influenced by trauma and peritonitis but neither trauma nor peritonitis causes paresis of the muscles of the intestinal wall.

Trauma constantly produces a definite and relatively prolonged cessation of the peristaltic action but as the rhythmic contractions persist this cannot be the result of direct damage to the musculature. Nor is it probable that a disturbance in the general circulation plays a part or that the cessation of peristalsis is brought about by inhibitory reflexes by way of the spinal cord. Direct injury to the paretic of the motor elements initiating the peristalsis is probably not the cause as the effect of trauma on peristalsis is almost abolished after radical extirpation of the solar plexus and degeneration of the efferent postganglionic tracts. The explanation of the effect of trauma is therefore probably to be found in some inhibitory reflex by way of nerve tracts through the solar plexus in the form of an axon reflex or a true reflex.

Perforation peritonitis also brings about cessation of peristalsis although less constantly and frequently to a lesser degree than trauma. The mechanism involved has not been definitely established.

operation as possible he found functional disturbances in a large percentage of the cases even when no clinical symptoms pointed thereto. He therefore considers a strict diet necessary during the first few days following operations on the stomach.

HANFRAK (Kaz) stated that in the cases referred to by Dzialozynski the cause was probably vicious circle which frequently develops after the Billroth II procedure and favors the formation of postoperative peptic ulcer of the jejunum. Very often ptosis of the duodenum is responsible. He believes that the diet should be carefully regulated for as long as three weeks after the operation. After four or five months the emptying process will be improved as a result of the development of a sort of sphincter. The ptosis of the duodenum demands the Billroth I procedure.

LIENSTERER (Vienna) stated that in his opinion the faulty emptying in the cases reported by Dzialozynski was due to the manner in which the coil was applied.

KEISCH (Chemnitz) maintained that when the coil is applied according to his method a vicious circle cannot develop. He has observed no peptic ulcer in his cases. He orders a strict diet for the first four weeks after the operation.

IRJUMANN (Lisstock) stated that there is a swelling of the mucous membrane during the first eight to fourteen days. Later there is formed a sphincter like closure demonstrable in the roentgenogram.

SCHOTMAYER (Haug) reported that he favored the Billroth I procedure. Roentgenoscopic examination often gives the impression that a sphincter has formed but this is due to compression of the intestinal wall.

In his reply DZIALOZYNSKI emphasized the fact that among the 100 cases there was no peptic ulcer and that only three cases required a secondary operation.

STERNER (Z)

Saint J H. Polyp of the Intestine with Special Reference to the Adenomatous. *Ann J S* 1927 24 99

Polypus of the intestine generally means any pedunculated or sessile growth projecting into the lumen of the bowel the result of hypertrophy or hyperplasia of the mucous membrane or else a benign true tumor.

Since the bowel wall is made up of various types of tissue tumors of different varieties may arise and project into the lumen of the bowel to form polyps; thus we may have adenomata, papillomata, fibromata, lipomata, myxomata and hemangiomas. The peritoneal coat alone does not attempt tumor formation.

Polyps may be single or multiple and vary greatly in size. They occur more frequently in the large intestine than in the small the ratio being approximately 4:1.

The most common site of polyps in the small bowel is the ileum. Polyps formed by glandular hyperplasia greatly outnumber the other varieties.

Hemangiomas and the globocellular or carcinoid tumor of the intestinal wall are very rare. Lipomata may occur anywhere in the intestinal tract they may be single or multiple sessile or pedunculated and often grow to a large size producing obstruction of the bowel. Adenomata are not common in the small bowel but when present occur most often in the duodenum. In the small bowel multiple polyps are more common than single polyps.

In the large intestine the sigmoid is the most common site of polyps and the adenoma is the type of polypus most frequently seen. Polyps associated with ulcerative colitis are not true tumors. They consist of strips of mucous membrane which have become detached by the ulcerating action of ulceration. Lipomata in the large bowel present the same gross and microscopic characteristics as lipomata in the small bowel.

Adenomata of the colon vary considerably in size and may be single or multiple. The cause leading to the formation of adenomata still remains uncertain. According to one theory they are of inflammatory origin while according to another they are the result of primary epithelial change. Adenomatous polyps are capable of undergoing malignant changes the changes have been demonstrated to begin at the periphery of the tumor. They have never been observed by the author in any adenoma smaller than a walnut.

Polyps in the small and large intestines occur more frequently in males than in females.

CYRIL J. GILBERT, M.D.

FERRY, D. Fruchaud, I. Nalag, E. Houdard, Tall, Hef, and Cadogan. Acute Intestinal Infection in Adult. (*Annals of the Royal Society of Medicine*) 1927 20 1318

Three cases of acute intestinal inflammation in the adult are reported.

Case 1 was that of a man 30 years of age who gave a history of recent abdominal colic with a desire to defecate, laxative bowel movements and bilious vomiting for four days. The abdomen was somewhat distended and on after the start of the pain in the middle below the umbilicus was slightly painful on palpation. The right lower quadrant of the abdomen was painful. A diagnosis of acute appendicitis was made. The temperature was 37 degrees C and the pulse 98. On the morning of the fifth day violent abdominal pain occurred and by half past four the abdomen became painful on palpation and more distended the pulse increased to 100 and the temperature rose to 37.3 degrees C.

An emergency operation through a low midline incision revealed free purulent fluid and fecal material in the peritoneal cavity and a perforated ileocecal intussusception. The gangrenous bowel was resected and the intestine anastomosed end to end. After cleansing of the peritoneal cavity with an ether sponge the abdominal wall was

most competent surgeon if a pre operative diagnosis has not been made or suggested (Wolfer)

It is agreed by all of the authors that before surgical procedures are undertaken medical methods should be employed. For the enterostomy type of patient some mechanical support is indicated. In addition Holmes advocates prolonged rest in bed and over alimentation. He states however that the cure is not likely to be permanent.

Wolfer believes that suspension of the ptosed viscera is uniformly unsuccessful. The kelloggs do not wholly endorse this procedure believing that gastropexy is justifiable only in properly selected cases. Bell and J. P. and D. V. Keith condemn gastro-enterostomy or plastic surgery at the duodenojejunal flexure when the obstruction is at the distal duodenum and regard duodenojejunostomy as the procedure of choice. Wolfer concludes that the causative factor should be removed if possible and that if this is not possible duodenojejunostomy is the operation of choice. F. L. and W. A. Kellogg believe that duodenojejunostomy is the most frequently indicated operation in obstruction of the third portion of the duodenum. They have operated upon eighty-two cases and in seventy-seven performed a duodenal jejunal anastomosis alone or in combination with other procedures. There are only two deaths. Next in importance they believe is an operation on the colon. They have made the interesting observation that glycosuria and possibly true diabetes is occasionally associated with a pathological lesion of the duodenum. While the reports are not sufficiently numerous to establish a relationship between the condition they justify further study of the problem.

CHAS. H. H. COCK, M.D.

Bolton C. and S. I. Mond R. W. A. Antiperistalsis of the Duodenum and Its Relation to Pyloric Regurgitation. *Lancet* 1921, 3.

Antiperistalsis has not yet been demonstrated to occur normally in any part of the alimentary tract in man although it is sometimes observed in the ascending colon. C. L. H. described the duodenal cap as a led the first part of the duodenum as a part of the stomach which has the esophageal contents expelled through the pyloric sphincter and from which the contents are absorbed by peristalsis. The first contraction of the duodenum according to the theory is commonly accepted at present the apical part discharging its content into the second portion of the duodenum. The first part of the food on to the third portion is peristaltic and then to the jejunum.

Regurgitation of duodenal contents into the stomach occurs normally at a definite time after the end of gastric digestion when the curve of the trochlear is visible. The gastric contents regurgitate when normal height about 0.2 per cent. It is entirely on relaxation of the pyloric sphincter.

There are three types of sphincter action: (1) the normal with pyloric relaxation at the peak of

the gastric acidity curve (2) spasm of the sphincter which occurs normally in the early stage of digestion but is prolonged resulting in hyperchlorhydria the most common of gastric disorders and (3) excessive relaxation of the pylorus which occurs at the beginning of digestion and results in regurgitation and neutralization the presence of bile in the gastric contents and the establishment of achlorhydria.

In 100 persons in whom the authors investigated the movements of the duodenal contents and the activity of the pyloric sphincter they noted four distinct movements: (1) contraction of the cap (the first part of the duodenum) (2) peristaltic contraction of the duodenum (other than the cap) propelling the contents forward (3) contraction of the duodenum (other than the cap) forcing the contents backward presumably antiperistalsis and (4) segmentation or mixing movements.

These movements were observed in normal persons and also in persons with such conditions as gastric ulcer gall stones new growths of the stomach gastro-enterostomy with a patent pylorus appendicitis and pyloric stenosis.

Antiperistalsis was observed in 93 per cent of the patients. It resulted from regurgitory movements toward the pylorus due presumably to duodenal contraction. The cap contracted and passed the food into the second and sometimes the third part of the duodenum.

The antiperistaltic wave forces the intestinal contents back for varying distances. Often the food passes back to the cap which it may distend and is then held up by the pyloric sphincter. A peristaltic wave then propels it onward again and another antiperistaltic wave returns it. The delay of the food in the duodenum assures its admixture with digestive juices. If in the meantime more food has left the stomach the two portions are mixed together. The mixture may then be driven into the jejunum by the first peristaltic wave or by several such waves. When it has once entered the jejunum it does not return to the duodenum. In every case the cap periodically filled completely or partially by antiperistalsis is of the duodenum and the only barrier to regurgitation into the stomach is the pyloric sphincter. The movements described continue until the stomach is empty.

Regurgitation into the stomach does not occur with every antiperistaltic wave. The pylorus begins to relax independently of gastric peristalsis as digestion proceeds and regurgitation occurs from time to time.

The pyloric sphincter regulates the output of the stomach and the regurgitation of duodenal contents.

CHAS. F. DU BOIS, M.D.

Vanderhoof D. The Medical Cure of Duodenal Ulcer. *J. Am. Med. Ass.* 1914, 1: 344.

Vanderhoof states that frequent feeding is the most important part of the treatment of duodenal ulcer. His patients are given once every hour from 10 a.m. to 9 p.m. 2 oz. each of cream and sweet milk.

It seems probable however that as in the case of trauma it is a question of inhibitory phenomena. The anatomical basis of these inhibitory phenomena is known only incompletely. Arai has shown that in reversible forms of peritonitis it is a question of inhibitory reflexes by way of the spinal cord but this explanation is not sufficient in a progressive irreversible process such as perforation peritonitis. The inhibition is not effected by division of the splanchnic nerves and even after radical extirpation of the solar plexus and degeneration of efferent post ganglionic tracts the inhibition may be well marked. It must be assumed therefore that inhibition takes place by way of the intramural tracts or by such tracts as pass in the immediate neighborhood of the intestinal wall.

Perforation peritonitis in the cats used in the authors' experiments constantly produced considerable although not complete mechanical obstruction in the form of fibrous adhesions and kinks.

As there was no meteorism below the obstruction the distention of the gut must have been due to the obstruction itself and the effect of any of the toxic exudate must have been of subordinate importance as the gut below the obstruction was usually empty and contracted. The obstruction was without exception numerous although one or more kinks were frequently more pronounced than the others.

Certain observations suggest that spastic contractions in Bauhin's valve may act as a mechanical obstruction.

It has been impossible to determine the extent to which mechanical obstructions modify the effect of peritonitis on peristaltic action. While there are reasons for the assumption that mechanical obstructions stimulate peristalsis thereby overcoming the peritonitic inhibition this effect seems to be far from constant. Anti peristaltic action has been observed only in cases of complete mechanical obstruction.

Case J. T. Chronic Obstruction of the Small Intestine. *Rad. 1899* 97: 11.

B. H. J. C. Keith J. P. and Keith D. Y. Chronic Obstruction of the Duodenum. *Rad. 1899* 97: 197.

Kellogg E. L. and Kellogg W. A. Chronic Duodenal Stasis. *Rad. 1899* 97: 123.

Wolfer J. A. Chronic Duodenal Obstruction. *Rad. 1899* 97: 130.

Holmes W. H. Chronic Obstruction of the Duodenum. *Rad. 1899* 97: 143.

Ivy A. C. A Brief Review of the Physiology of the Duodenum. *Rad. 1899* 97: 47.

All of the authors give a long list of lesions capable of causing duodenal obstruction. Among intrinsic causes are congenital abnormalities, duodenitis, ulcers and foreign bodies. The extrinsic causes include enteropneumosis, peritoneal bands and adhesions, angulations, constriction by the root of the mesentery or the superior mesenteric artery, choledochitis, gall stones, pancreatitis and extrinsic pressure by tumors or aneurisms.

As Holmes states almost any inflammatory or malignant condition in the upper abdomen may result in duodenal obstruction. In all of the articles attention is directed mainly to obstruction resulting from enteropneumosis, peritoneal bands or adhesions and pressure by the root of the mesentery or the superior mesenteric artery.

Beck J. P. and D. Y. Keith and Holmes refer to the hypothesis that the pull of a large dilated cecum on the mesentery constricts the duodenum. Holmes observes that dilatation of the cecum is common while an associated duodenal obstruction is uncommon. The Kelloggs point out that prolapse of the cecum or small intestine into the pelvis may cause constriction of the duodenum by causing traction on the ileocolic artery and through the ileocolic artery upon the superior mesenteric artery.

The symptoms vary depending upon whether the obstruction occurs above or beyond the ampulla. Cases of obstruction beyond the ampulla are the most common. Wolfer states that early in the disease the pyloric sphincter is hypertonic and spastic. Pain results. Later the pain is relieved by relaxation of the sphincter or by vomiting. The symptoms described by the authors are those of a chronic dyspepsia.

Ivy reminds us that in obstruction toxic substances which normally are not observed pass into the circulation from the duodenum. In addition to the digestive symptoms there are usually toxic symptoms but as a rule the latter are vague and insignificant. Wolfer warns that in some acute cases the first treatment must be directed to aid detoxication and fluid and nutritional replacement.

It is apparent that the clinical symptoms are not sufficiently characteristic to permit a positive diagnosis without the aid of roentgen examination (Holmes). Beck and J. P. and D. Y. Keith emphasize the value of the upright and right semilateral positions. They state that obstruction can usually be demonstrated in the supine position but Case warns that apparent duodenal dilatation may be produced in the supine position as the duodenum adds over the spine in such a way as to make a certain degree of obstruction at the duodenojejunal flexure with writhing duodenal movement.

According to Case the roentgenological proof of duodenal stasis is the demonstration of a prolongation in the emptying time. Indirect evidences are writhing of the duodenum, retrograde transport of the duodenal contents and duodenal dilatation. Ivy states that reversed movements occur under normal as well as abnormal conditions. In Case's opinion on the evidence should be present at repeated examinations before a definite diagnosis of duodenal stasis is made.

The diagnosis may be difficult for the surgeon even after the abdomen is opened. Because of the irregularity of the duodenum and its rather firm posterior fixation its size and shape and character are difficult to determine. It is therefore not surprising that the best action may be overlooked even by the



summer. The mid winter rise may be related to the increased incidence of acute pulmonary infections in the winter and the mid summer rise to the increase in acute intestinal infections in the summer.

In the past twenty five years the mortality has been high at among persons between 15 and 19 years of age. The authors attribute this fact to the inscriptions of adolescence and depletion of resistance due to rapid growth.

Statistics from 1901 to 1905 compared with those from 1912 to 1925 show that while the mortality before the thirtieth year of age has decreased the mortality after that age has increased. The reduction in the incidence of the disease after the thirtieth year of age the authors attribute to the high mortality of twenty five years ago. The ratio of deaths of males to deaths of females is 59:41.

WILFRED L. GRAHAM, M.D.

Schueck, F. Late Result of Surgically Treated Appendiceal Abscess (Nineteen Cases) (J. A. S. 1927, 21: 15)

The author has reviewed 38 surgically treated cases of appendiceal abscess from the abundant material of the Urban Hospital, Berlin. Ninety five of the patients were re-examined and sixty four answered a questionnaire. There were eighty nine primary appendicectomy and 146 secondary appendicectomies. The 146 patients who had abscesses were mostly operated on and trained to return as required a fact which speaks in favor of primary appendicectomy.

The least interval between the first and second operation was found to be two or three months. When the interval was longer few patients returned for the second operation. The theory that after the treatment of an appendiceal abscess the appendix becomes better vascularized by the anastomosis of the ileum and cecum is followed in the operation. If there are no further attacks are to be expected, a final ileocecal anastomosis is performed.

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Martin, E. and B. D. N. G. The Surgical Significance of the Recto-sigmoid Sphincter

Martin, E. and B. D. N. G. The Surgical Significance of the Recto-sigmoid Sphincter. The authors have studied the recto-sigmoid junction in 100 cases. They found that the recto-sigmoid junction is a distinct anatomical entity and that it is a functional sphincter. They also found that the recto-sigmoid junction is a common site for the development of diverticula and that it is a common site for the development of cancer.

to that at the pylorus and a distinct narrowing at this point.

In the absence of a demonstrable lesion peristalsis is normal at the rectosigmoid sphincter is the usual cause of sigmoidal stasis. In the adolescent subject and the adult this stasis may result as in Hirschsprung's disease in the infant in obstinate constipation and ultimate megacolon. It may be manifested also by postoperative tympany unrelieved by tube or enema.

The palliative treatment of sigmoidal stasis is based on measures designed to make or keep the bowel contents fluid, strengthen peristalsis and relax the tonus of the phincter muscle. Laxatives and purgatives given by mouth and copious enemata keep or make the sigmoidal content soft or fluid and stimulate peristalsis. Belladonna derivatives relax spasm as does magnesium sulphate given in the form of an 8-oz. enema of the saturated solution.

Chronic sigmoidal stasis with or without hypertrophy and dilatation of the gut may be cured by excising the rectosigmoid sphincter and allowing the mucosa to prolapse into the muscle wound without effort at plastic closure. Or the sphincter may be overstretched by means of a rubber bag with a larger diameter than that used in the esophagus passed through a proctoscope. Insofar as the colon is concerned postoperative tympany may be relieved by passing a colon tube into the sigmoid. A proctoscope being used to guide the tube through and past the rectosigmoid sphincter. Rivas has successfully passed such a tube made soft by boiling by the sense of touch and has X-ray pictures to prove that it can be done. ARTHUR L. STURFFLER, M.D.

## LIVER, GALL BLADDER, PANCREAS AND SPLEEN

Graham, A. J. Subcutaneous Rupture of the Liver. A. J. S. 1927, 21: 51

Injury of the liver by non-penetrating violence or subperitoneal rupture is rare in civil practice. Graham summarizes the chief clinical features of eleven cases.

The liver is the most frequently injured internal organ. Its partial fixation, its shape and its composition render it easily injured. In children it is larger and more friable than in adults.

Shock is of two kinds: (1) primary traumatic and (2) that due to continued bombardment of the nervous system. Sudden acceleration of the pulse to 140-160 due to a fall in the blood pressure is almost characteristic of internal hemorrhage. As the primary shock passes away the presence of an abdominal lesion is indicated by local symptoms. Abnormal dullness is a positive sign of a liver lesion. Infection is often sudden whereas peritonitis is distinctly gradual and protracted in its development.

The diagnosis of a liver lesion is often impossible until the day after the accident. If it cannot be based upon abnormal dullness, dependence must be placed upon the disappearance of liver dullness.

to which is added 10 gr of sodium citrate. In the average case of chronic duodenal ulcer six feedings daily are sufficient. The best food for patients with ulcer is fat such as cream butter and olive oil. Belladonna 10 drops in water three times daily before meals helps to relieve pylorospasm and hyperperistalsis. The treatment must be carried out regularly and persistently for a period of two years. Subsidary treatment consists in the eradication of all foci of infection. At the expiration of two years all medication should be discontinued.

The author's results from the medical treatment of uncomplicated duodenal ulcer have been most gratifying. Considerably more than half of the patients have obtained immediate relief and have remained well and free from symptoms after the two year period. A certain percentage obtained such prompt relief that they were unwilling to continue the treatment in the absence of symptoms. In such cases recurrence of the ulcer syndrome is almost inevitable. Temporary relief is again obtained when the treatment is resumed but eventually some complication occurs and operative intervention becomes necessary. *ARTHUR L. SHREFFLER MD*

Michaelsson E. A Case of Carcinoma of the Sigmoid Intussusception in a Child Aged 3 Months. *La Chir. Scand.* 1927; 12: 57.

The author reports a case of carcinoma of the ileum in a child 3 months old who was taken suddenly ill with typical symptoms of intussusception (signs of obstruction, bloody stool, and a palpable mass in the abdomen). The tumor had transformed the ileum for a distance of about 10 cm into a sausage-like structure the surface of which was purple and sprinkled with small nodules and the wall of which was penetrated by typical carcinoma tissue. In the mesentery belonging to the involved gut there were hæmangiomatous formations up to the root. Resection and side to side anastomosis were followed by diffuse peritonitis resulting from leakage of the suture and death resulted on the following day.

The author is of the opinion that the symptoms of obstruction and the bloody stools were due to torsion of the carcinoma causing swelling of the altered gut and more or less obstruction of its lumen.

Despite the fatal issue in the case reported he believes that the best treatment is resection. Unless the carcinoma is removed there is danger of infection, thrombosis, and further growth of the tumor.

Bolling R. W. Megacolon. *A. S. J.* 1927; 1: 112.

Under the terms congenital dilatation of the colon Hirschsprung's disease and megacolon are grouped a number of conditions of the large intestine characterized anatomically by a total or segmentary dilatation of the large bowel with hypertrophy of the walls in the dilated zone. Hypertrophy usually accompanies the dilatation often with involvement of the cecum. Hirschsprung advocated

the term true megacolon for the cases manifesting symptoms in infancy and early childhood and pseudo megacolon for those occurring in later life.

In its typical form the condition is characterized by obstinate constipation with abdominal distention. The constipation is often noted from birth. Abdominal distention may be present at birth but more frequently appears in the second month or later. The majority of persons with this condition die in early childhood but some of them reach adult life and even old age. The involvement is usually most marked in the sigmoid colon but the entire large intestine or any portion of it may be the site of the disease. Exceptionally there is a normal segment of intestine between two dilated portions. The rectum may be involved but is usually normal.

Medical measures include the wearing of a supporting abdominal belt, a low residue diet with restriction of starches, the avoidance of laxatives with the exception of mineral oil, and the daily use of high enemas. Massage, electrical treatment, and the administration of atropine may be employed. Dilatation of the anal sphincter sometimes proves of advantage. If the condition is not improved or at least held in check operation is indicated. A preliminary colostomy may be done. Procedures varying in extent from ileosigmoidostomy to total colectomy in one stage with implantation of the ileum into the rectum sigmoid have been advocated.

Medical and surgical treatment each have their indications and limitations. The treatment must be based entirely upon the requirements of the particular case. *SAMUEL KAHN MD*

Williams E. U. The Normal Variability of the Action of Pituitrin on the Contractile Power of the Cecum and Colon. *P. C. A. S. C. M. D.* Lond. 1927; 1: 273.

In experiments on forty nine medical students Williams demonstrated the fallacy of the theory that a normal cecum shows marked movements a few minutes after the subcutaneous injection of 1 cc of pituitrin and that the atonic cecum is unaffected.

Of the forty nine subjects only eight showed any recognizable movement of the cecum after 10 minutes and in the rest the cecum was unaffected. Therefore as so many normal cecums remain unaffected by the drug the use of pituitrin is of practically no value in the diagnosis of tonic cecum. *IRVING L. S. & E. M. D.*

Carr E. I. and Deaton W. J. V. Appendicitis—A Study of Michigan Statistics. *J. Mich. Med. Soc.* 1927; 1: 358.

The authors review 31,032 deaths from appendicitis in the State of Michigan.

The infection may reach the appendix from the lumen of the intestine, the blood stream, or adjacent structures. Roughage in the diet, appendicitis, appendicitis. The greatest number of deaths from the condition occur in midwinter and mid

4 Division of the vagi does not eliminate the cardiac arrhythmia J FRANK DOLGERT M D

Halpert B Morphological Studies on the Gall Bladder I A Note on the Development and the Microscopic Structure of the Normal Human Gall Bladder B II J A S Hopki Hosp I It 1927 xl 390

Halpert traces the embryonic development of the gall bladder bile ducts and liver from the duodenum and discusses the differentiation of the structures that make up the wall of the gall bladder

The epithelial lining of the gall bladder and the bile ducts and the parenchyma of the liver are of entodermal origin while the remainder of the layers of the gall bladder and the bile ducts and the interstitium of the liver are of mesodermal origin

The article includes photomicrographs of gall bladders in embryos showing the differentiation of the mesoderm into the sub-epithelial muscular and perimuscular zones and the differences between the free and attached sides of the gall bladder

It is pointed out that the gall bladder has no true submucosa though the musculature is late in developing and that some of the glands in the neck of the gall bladder penetrate the muscularis as Brunner's glands perforate the muscularis mucosae of the duodenum The author suggests that the muscular coat of the gall bladder is analogous to the muscularis mucosae of the duodenum This would explain why direct mechanical chemical or electrical stimuli have no demonstrable effect on the gall bladder as they do on the duodenum

The macroscopic appearance of the lining membrane of the human gall bladder shows the formation of the valves of Heister Microscopically the lining membrane does not exhibit any specific glands of secretion goblet cells or glands except in the neck of the gall bladder where they are occasionally seen

The author explains the formation of the Rokitsansky's hilum sinuses and their differentiation from glands Sinuses are very rarely seen in the normal gall bladder and are believed to be caused by repeated verdistensions and contractions of an unattached gall bladder probably associated at times with some obstruction in the common duct

The muscularis consists microscopically of longitudinal oblique and circular layers none of which is sufficiently dense to form a distinct layer The muscularis helps to form the surface relief of the mucosa

It is pointed out that the normal human gall bladder is never over-distended and never extremely contracted but always in a state of moderate distention and practically never empty As a rule the gall bladder does not empty itself by muscular contraction The amount of bile that leaves the cystic duct in ten to fifteen hours is very small

The perimuscular layer is a layer of connective tissue around the muscularis and contains the cystic artery

cystic veins lymphatics and fairly large nerves The fourth layer of the gall bladder is the serosa formed by the peritoneum

The wall of the gall bladder may be said to be composed of three layers (1) the mucosa (2) the muscularis and (3) the perimuscularis

WILFRED L. GRAHAM M D

Gould E P and Whitby L E H A Case of Bacillus Welchii Cholecystitis B I J S 1927 x 646

The authors report the case of a woman 43 years of age upon whom they performed a cholecystectomy The aspirated fluid which had a rancid odor was examined bacteriologically Smears showed gram positive bacilli resembling the bacillus welchii Anaerobic cultures yielded a profuse growth of organisms similar to those found in the smears Guinea pig inoculations caused intense gas gangrene and death within twenty-four hours When the stones found in the gall bladder were crushed and incubated the bacillus welchii was obtained from all and the streptococcus faecalis from two Examination of the gall bladder showed the bacillus welchii in large numbers in the ulcerated mucous membrane

The patient's uneventful recovery is attributed to the complete removal of the focus of infection by the removal of the gall bladder

In one of two other cases cited the patient's condition was so grave that exploration of the gall bladder was impossible At autopsy the bacillus welchii was recovered from the omentum gall bladder liver and spleen In the other case the bacteria were confined to the gall bladder and the condition terminated in recovery RAYMOND GREEN M D

Fowweather F S and Collinson G A Certain Chemical Changes Associated with Gall Stones with Special Reference to the Relation Between Gall Stones and Hypercholesterolemia B I J S 1927 xi 583

The authors investigated the cholesterol and calcium contents of the blood bile and gall bladder The determinations were made in cases which had come to operation

The blood cholesterol was increased in 46 per cent of the cases and the blood calcium in 32 per cent The bile cholesterol was increased in 44 per cent but decreased in 6 per cent the mean value being higher than the mean normal but decreased with an increase in the blood cholesterol

The bile calcium was increased in 6 per cent of the cases and decreased in 18 per cent Here the mean value was below the normal mean value but its variation with increased blood cholesterol was not always in the same direction

The cholesterol content of the gall bladder was increased in 45 per cent of the cases and decreased in 21 per cent The gall bladder calcium was increased in 44 per cent and decreased in 3 per cent

Whatever the value of the blood cholesterol the great majority of the cases showed marked changes



meal of me of the Municipal Hospital of L. sen Kuhr  
Like Seile he differentiates between acute pan-  
creatic necrosis and the pancreatoses which are  
pancreatic injuries without parenchymatous changes  
in the gland

In the discussion of the symptoms particular at-  
tention is called to the colicky pains and their fre-  
quent location in the epigastrium also to the fact  
that frequently a deep pain in the back is felt on  
palpation of the epigastrium. It is emphasized re-  
peatedly that often in spite of the most severe toxic  
general symptoms the changes in the pancreas are  
slight and vice versa. Therefore no conclusion re-  
garding the changes in the pancreas can be drawn  
from the symptoms or the severity of the attack.  
The author emphasizes also that it is well to be  
more conservative in attacking the gland itself and  
its surroundings as a cure may often be obtained  
by simple laparotomy or extirpation of the gall  
bladder.

The pancreas itself should be attacked only for  
foci of necrosis which lead to complete locust in  
the parenchyma. Opening of a necrotic focus must  
be done with extreme care and without causing  
irritation. The surroundings of the pancreas  
should be packed off and drained if an exudate is  
found in the omentum bursa. When only slight  
changes are to be expected nothing should be done to  
the gland itself and only the disease biliary pas-  
sages should be treated. The operation should be  
performed fearlessly.

The most important clinical factors are the exis-  
tence of gall bladder and the treatment of these is  
often sufficient to produce a cure. (H. u. Z.)

Wild R. M. Allan F. N. Lower M. H. and  
Robertson H. L. Carcinoma of the Head of  
the Pancreas. Hyperplasia and Hypergly-  
cemia. J. Am. Med. Ass. 1914, 1, 448.

The authors report a case in which there was a  
constant tendency toward postprandial hyper-  
glycemia. This attitude is representative of  
diabetes mellitus with pancreatic origin in  
the head of the pancreas.

The patient was a 45-year-old man, single, who  
had a frequent attack of epigastric pain  
in the right upper abdomen, which was  
accompanied by nausea and vomiting. The  
pain was described as a "burning" or "aching"  
pain, and was relieved by the use of morphine.  
The patient had a history of diabetes mellitus  
for many years, and had been treated with  
insulin. The authors performed a laparotomy  
and found a large, firm, nodular mass in the  
head of the pancreas, which was removed.  
The patient recovered well, and the hyperglycemia  
was relieved. The authors conclude that the  
hyperglycemia in this case was due to the  
carcinoma of the head of the pancreas.

than 0.030 gm for each 100 c cm. Epinephrin and  
pituitary extract had no influence in preventing the  
fall. At the first examination the amount of sugar  
required to maintain the normal blood sugar level  
was found to be from 20 to 25 gm every hour. The  
requirement rapidly increased until two months  
later it was necessary to give sugar every half hour  
and the total amount ingested in twenty hours  
exceeded 1000 gm. Death finally occurred from  
exhaustion.

An exploratory operation performed one month  
before death revealed a large tumor in the tail of the  
pancreas and several metastatic nodules in the liver.  
These findings were confirmed at autopsy. Micro-  
scopically the tumor showed a distinct resemblance  
to the islets of Langerhans and the similarity seemed sufficient  
to justify the conclusion that the tumor was a car-  
cinoma originating primarily in the islets of Langer-  
hans. The proof that it was responsible for the  
excessive production of insulin was furnished by  
testing an extract of one of the masses in the liver  
for insulin activity. The extract was decidedly  
active in lowering the blood sugar of rabbits while  
a control extract of hepatic tissue was inactive.

The condition encountered in this case has not  
been previously described. It may therefore be re-  
garded as a new disease. The demonstration of the  
production of an internal secretion by a malignant  
tumor is also of unusual interest.

Bergmann von International Conference on Surgery  
of the Pancreas (Intern. ts. hes. kongress fur  
chirurgie des pankreas) 51 Tag. d. d. w. ch. Ges. f.  
Chir. Berlin 1913.

Von Bergmann reviewed the experiments on  
animals performed by Guleke. He called attention  
to the fact that there are few instances in experi-  
mental medicine in which it is possible as in pan-  
creatic disease to reproduce in animals the conditions  
seen in man. The severity of the resulting disease  
picture depends upon whether the animal is at the  
height of digestion or hungry. When the animal is  
in a state of hunger the resulting disease picture is  
mild. The essential factor which gives rise to the  
liver disease is the ferment. The powder lies in the gland  
ready to explode and can be made to explode by  
numerous influences.

Bacteric acids are included among the etiological fac-  
tors, but are not essential for the production of the  
disease. In the foregoing is an autolysis. In  
preliminary treatment with trypan preparations  
von Bergmann has been able to produce a certain  
immunity or rather a certain resistance to toxins.  
The production of a passive immunity, however,  
has never been realized. Von Bergmann believes  
that it may be possible to render the course of the  
disease milder in clinical cases by the adminis-  
tration of trypan preparations. Although even  
the most severe cases may be cured by these means, the  
symptoms are severe and the course is such that  
the attacks are frequent and the patient is in a  
very difficult condition to diagnose.



times the duct of Wirsung and sometime the duct of Santorini is the major passage. In some cases the two ducts run parallel whereas in others they empty into each other. In some cases they empty to either at the normal site but in others there is a minor papilla and the choledochus and pancreatic ducts empty at different points.

HEUSS (Berlin) discussed the diagnostic value of the Wohlgemuth test on the basis of observations made on 111 cases service at the Rudolph Virchow hospital. In thirty three cases a pathological increase was found three times. In twenty two cases of pancreatitis normal values were found only twice. The test is of value also because of its simplicity and rapidity.

BRUETT (Hamburg) also emphasized the minor rôle played by bacterial infection in pancreatitis. Even the most severe cases are sterile. Bruett has followed up a number of cases after treatment. Functional tests were normal so far as fat was concerned. Moreover even the administration of large quantities of glucose did not lead to the elimination of sugar in the urine. Occasionally, however, high blood sugar values were found. The danger of chromogenic disease after a successful operation is slight.

SEELIGER (Freiburg) discussed the bactericidal action of pancreatic juice. Careful studies have shown that the succus entericus has a bacteriostatic action only after the removal of its lipid by the fat splitting action of the pancreatic secretions.

MOZKOWSKY (Vienna) referring to von Bergmann's statements regarding the development of pancreatitis after cholecystectomy, emphasized the importance of the anastomosis between the common duct and the duodenum which von Bergmann recommended. It may be important to separate the two ducts from each other. There was only one death in the fifteen cases in which heeger made such an anastomosis. When this type of operation is performed distal to the hepatic duct is not necessary.

HÖHLBAUM (Leipzig) emphasized the danger of injury to the common duct of the pancreatic duct in resection of the duodenum. Following such injury a pancreatic fistula develops. To close a fistula of this kind Höhlbaum draws up a loop of jejunum and implants the fistula into it in the manner of a Braun anastomosis. He closed the fistula in this way. In a similar manner he closed a fistula following an operation for pancreatic cyst. The jejunal loop was for the purpose of a distal and an interanastomosis. The patient has not been cured for six months.

FINSTERLIN (Vienna) also stated that in cases of gastric ulcer involving the pancreas the base of the ulcer should be left but in all cases drainage must be established. In his 93 resections for ulcer a gastric or duodenal ulcer penetrated into the pancreas was found 24 times. In none of these cases did peritonitis develop. Finsterlin has seen only one case of acute pancreatitis at resection of a small ulcer penetrating into the pancreas the base of the ulcer

was removed the surface of the pancreas covered with omentum and the abdomen closed without drainage. Involvement of the pancreas by a gastric carcinoma makes resection more difficult and renders the immediate postoperative results less satisfactory but this condition can no longer be regarded as a contra-indication to an attempt at radical operation as patients who are not operated will die whereas of those treated surgically nearly 25 per cent survive and are well more than five years after the operation. To improve the operative results Finsterlin advised the most sparing operation possible with the avoidance of general anesthesia and with careful packing off of the general abdominal cavity from the site of operation and careful external drainage of the pancreatic secretion. He believes it well also to omit the usual resection of the omentum. Of 97 patients subjected to resection for carcinoma seventy-one showed involvement of the pancreas. Of these twenty-three (34 per cent) died after the operation. Of forty who were discharged as cured fourteen (35 per cent) remained free from recurrence for more than three years and twelve (33 per cent) for more than five years.

ORTH (Homburg Saar) emphasized the difficulty in the diagnosis. Occasionally a sensation of pressure in the mid abdomen is the principal symptom. Roentgen examination is decisive chiefly in cases of pancreatic stone. In a case of stone operated upon by Orth a number of years ago death occurred six weeks after the operation from the erosion of a vein.

ARNSBERGER (Karlsruhe) also stated that there are mild affections of the pancreas which disappear spontaneously but are indicated by a diabetes developing late. He emphasized the importance of recognizing these conditions.

VOLKMAN (Halle) said that in order to prevent fistula formation the suture should penetrate only the capsule.

WESTPHAL (Berlin) stated that in disturbances of motility of the biliary passages and the pancreatic duct particularly in the common biliary condition with dilatation of the common duct and in sympatheticotrophic irritative states of the biliary tract it is possible for pancreatic ferments especially trypsin to find their way into the biliary ducts and the liver. Extensive experiments made on dogs rabbits and cats showed that the injection of pancreatic secretion into the extrahepatic bile passages caused extensive and severe injuries to the liver gall bladder and common duct which closely resembled the pathological changes seen in human gall bladders. In addition to bacterial infection these autofermentive injuries of the liver and pancreas occurring most frequently through the larger ducts and those occurring in the ducts themselves seem to play an important rôle in disease of these organs. Therefore in gall bladder disease with marked dilatation of the common duct a choledochoduodenostomy seems to be definitely indicated to provide quick drainage of the ferments which are so dangerous when the passages are completely closed.

In cholelithia is sudden irradiation of the pain toward the left and a sense of constriction extending from the left shoulder to the sigmoid and sometimes even into the left leg are symptoms suggestive of pancreatic disease. Involvement of the pancreas can be established also by the exact determination of Mead's zones. These are quite different phenomena from those occurring in stormy acute pancreatitis demanding immediate surgical intervention. Not every pain in the left epigastrium is a pancreatic pain but according to von Bergmann, experience a large percentage of them are traceable to the pancreas.

Among the aids to diagnosis is the diastase reaction in the urine. While a high diastase content in the urine is found also in other very febrile conditions and its absence does not exclude the presence of pancreatitis, the test is nevertheless of some value. The finding of diastase in the blood is also not conclusive. Of greater value is examination with the duodenal tube. If no trypsin is found after irrigation of the duodenum with ether, the test is conclusive but if trypsin is found the test is not conclusive. Of greater importance is the occurrence of a typical local attack of pain after the introduction of the ether.

What is the anatomical basis of these mild cases? Pathological anatomy gives little information as the sequelae often do not become apparent for years. The blood sugar content is also not characteristic. In the acute attacks there may be a hypoglycemia progressing to hypoglycemic shock. At times there is a hypertrophy of the insular tissue but the carbohydrate metabolism may remain entirely unchanged. Von Bergmann believes that some of the cases of pericystitis and of periduodenitis found at operation or autopsy are to be ascribed to pancreatic conditions.

Attention is called to the relation between corpulency and pancreatic disease. Pancreatic diseases are associated most frequently however with gall bladder conditions such as cholecystitis and cholelithiasis. Frequently the condition is not one of stone but a neuropathic complex. Bile and trypsin are channeled back and forth and cannot find the right path in the duodenum. If they enter the pancreatic duct pancreatic disease may result. After the removal of the gall bladder the reservoir for large quantities of bile is lacking and if in this condition the sphincter of Oddi is closed the bile enters the pancreas and causes symptoms. This explains the *simultaneous irradiation of the pain*. To prevent this condition it is necessary in cholecystectomy to make a side anastomosis between the choledochus and the duodenum.

In conclusion von Bergmann repeated that he does not oppose early operation for acute attacks but believes it of the greatest importance to recognize the mild attacks as pancreatic disease and by diagnosis the cases of latent pancreatitis and by treatment with trypsin and a proper diet to ward off severe attack associated with necrosis and hemorrhage.

In the discussion of von Bergmann's paper WALZEL (Vienna) reported that in six of the twelve cases of pancreatic necrosis in which he operated he was not satisfied with merely splitting the capsule but went deeper down into the gland in order to remove the necrotic tissue. In five cases he was able to do this without causing hemorrhage but in one case death resulted from severe hemorrhage with symptoms of an embolism and autopsy revealed rupture of the splenic vein. The wall of the vein was permeated by necrotic fat and had been thinned out to one fifth its normal thickness. Elastic fibers were present in very small numbers or entirely absent. The smooth muscle also showed signs of degeneration. This case demonstrated that the greatest care is necessary when deep incisions are made. As the result of the swelling of the gland the vessels may become displaced and a great deal of damage may be done if the surgeon gets away from the midline.

GULEKE (Jena) remarked that in further experimental work it will be very important to differentiate acute pancreatitis which is an auto-genic condition from purulent pancreatitis. Experimental and clinical evidence has shown that in the former bacteria are found only rarely and ferments; in the most important rule. First among the causes of pancreatitis are gall stones but a stone in the common duct or papilla of Vater is rare. In experiments on dogs in which Guleke studied the pressure relations in the common and pancreatic ducts he found that during spasm the pressure is higher in the common duct whereas during digestion it is higher in the pancreatic duct. Therefore the occurrence of an obstruction is unusual. There are also the modes of development of importance from the standpoint of prophylaxis. The determination of diastase in the blood is a diagnostic aid. Nothing of prognostic value is to be obtained from quantitative determination. With regard to treatment Guleke called attention to the fact that despite early operations the number of poor results has not been appreciably decreased. The condition always suggests a severe inflammation and some remedy must be sought to combat the latter.

HABERER (Cologne) stated that he had seen only one case of pancreatic stone and some of them were biliary in origin. He cited Herberich's case of fibroadenoma and reported that he had operated upon a similar case (characteristic symptoms pointing to pancreatic disease were not present). The mass in the left retroperitoneum which was the size of a child's head was taken for a retroperitoneal tumor. The nodule was removed intact and peritoneally but at the time of operation it was a teratoma and a pancreatic tumor. The abdomen was the chief complaint which he remembered that he had not thought of as a pancreatic stone. He was of the opinion that it was well.

He also mentioned a case of retroperitoneal teratoma which he had removed and reported that it was a teratoma and a pancreatic tumor. The abdomen was the chief complaint which he remembered that he had not thought of as a pancreatic stone. He was of the opinion that it was well.



The author then enumerates briefly some of the less common causes such as the entrance of ascariæ into the duct meat and sausage poisoning and metastatic pancreatitis which occurs especially frequently after proctitis and also after operations performed at a distance from the pancreas as the result of retrograde transportation.

The diagnosis may be very difficult. The ability to palpate the pancreas does not necessarily mean that the organ is diseased. The pain of pancreatic disease is transmitted by the solar ganglion back of the pancreas. Characteristic of pancreatic disease is the sudden occurrence of abdominal disturbance with severe vomiting but without abdominal rigidity.

In 120 cases a positive diagnosis was made in 320 and a tentative diagnosis in 94. In 346 cases the condition was believed to be an affection of the biliary tract in 160 peritonitis in 157 perforated ulcer and in thirty-four appendicitis. Erroneous diagnoses were made even when the abdomen was open.

The increase in the number of cases of pancreatic disease diagnosed has been due not to an increase in the incidence of the condition but to an increase in the facility with which the diagnosis is made. The ratio of women to men affected is 63.35. Of the patients whose cases are reviewed 794 were fat and 5 were thin. The condition is most common in persons who are heavy eaters and drinkers.

Of 127 patients who were operated upon 624 (48 per cent) were cured. Those who were not operated upon and recovered had serious after-effects such as diabetes and chronic peritonitis. In only a few of the cases were there pancreatic stones of any considerable size which could be removed.

The author then briefly considers the problem of diabetes. There is still no operative treatment for this condition. The administration of insulin is not a true substitution therapy.

In conclusion Schmieden discusses the indications and type of operation for pancreatic disease. Early operation is the procedure of choice (Guleke). A prognosis is impossible; there should be no hesitancy when a definite diagnosis is made. Tiding the patient over to a free interval is impossible. Only in the presence of extreme collapse and in late cases is it justifiable if the pulse is good to await the formation of an abscess or a cyst. As a rule it is dangerous to wait until the complete clinical picture has developed. The purpose of operation should be to evacuate the exudate by wide opening of the abdominal cavity, splitting of the capsule and drainage. The usual approach is by the anterior route with raising of the stomach and colon. The lumbar route is used only exceptionally but for better drainage a counter incision is often advisable. Frequently it is not sufficient to split the capsule of the gland; the parenchyma also must be incised. Care must be taken not to injure the pancreatic ducts.

In the diagnosis of pancreatic stone the X-ray is often an indispensable aid. Of twenty cases of pancreatic stone eleven were cured. Of 18 patients with cysts 112 were cured and fifteen died. True and false cysts must be differentiated. Of sixty-two cases of wounds of the pancreas thirty were cured. Improvement in the results will be possible only from early diagnosis and operation.

STETTINER (2)

|            |  |         |   |   |    |   |    |
|------------|--|---------|---|---|----|---|----|
| Bailey H   | Traumatic Rupture of the Normal Spleen | B H J S | 5 | 8 | 10 | 7 | 4  |
| Susman M P | Spontaneous Rupture of the Spleen      | B H J S | 5 | 8 | 9  | 7 | 47 |

BAILEY states that cases of rupture of the spleen may be divided into four groups: (1) those which are rapidly fatal, the patient never rallying from the initial shock; (2) those in which the patient recovers from the initial shock and shows signs of splenic rupture later; (3) those with delayed signs and symptoms; and (4) those with spontaneous recovery.

Uncomplicated rupture of the spleen is seldom a cause of sudden death. More than three-fourths of the cases fall into the second group. The clinical signs of internal hemorrhage are inconstant and at times very difficult to differentiate from those of shock. Restlessness, air hunger and a rising pulse rate are not always present. Abdominal rigidity and localized tenderness over the splenic area are more constant. Shifting dullness in the flanks is probably always present. Inquiry should always be made regarding the presence of referred pain in the left shoulder.

In the cases in which serious hemorrhage occurs it occurs until after a period of several days; the pedicle must be handled with particular care on account of its fragility.

Spontaneous recovery from rupture of the spleen is possible but fails to occur so frequently that the necessity for surgical aid must always be assumed.

The left paramedian incision is used most generally for splenectomy but a supra-umbilical median incision is usually adequate and permits more rapid opening and closing of the abdomen. If more room is needed the latter incision can be enlarged transversely to the left. Splenectomy is preferable to suture and tamponade. An ideal procedure is the transfusion of matched blood as soon as the pedicle is ligated. If this cannot be done the subcutaneous administration of saline solution is indicated.

The early complications which may occur while the patient is still in the hospital are: (1) peritoneal effusion due probably to the leakage of pancreatic ferments from the wounded tail of the pancreas; (2) bursting open of the wound requiring re-suture; (3) pleural effusion on the left side; (4) persistent hiccup due to irritation of branches of the left phrenic nerve; (5) splenic asthma; (6) general peritonitis; and (7) intestinal obstruction.

The late complications are attacks of cardiac palpitation when the patient lies on his left side and

VON REDWITZ (Munich) has used the Wohlgemuth test in numerous cases. An increase of the diastase in the urine and blood indicates obstruction of the pancreatic duct or hypofunction. A negative reaction alone means nothing. The value of the test is determined by comparison. Von Redwitz recommends the use of the test in the re-examination of patients. He called attention also to the toxic character of the disease picture which makes the diagnosis easier. Often however the picture is variable. Von Redwitz has noted the sudden shifting of the pain toward the left side in cases with a typical history of gall bladder disease. This shifting may occur within a period of twenty-four hours. He cited several cases of acute pancreatitis occurring during pregnancy. The blood sugar content is high.

LOTHEISEN (Vienna) stated that he has seen fifty-three cases. Thirty-one of the patients were women. Four refused operation. Of these one died and the three others got well. In two cases in which operation for some other condition was done later the correctness of the diagnosis was proved by the fat necrosis which was still present. In thirty-two cases of gall bladder disease which were operated upon involvement of the pancreas was suggested throughout the entire clinical course of the condition. The clinical picture included left-sided pain (especially a characteristic pericardiac pain). The diagnosis was made before operation in two-thirds of the cases. As a rule Lotheisen split the capsule and drained the excretion by several drains extending the entire length of the gland. By these measures he has reduced the mortality from 50 to 18 per cent.

SKRAUB (Berlin) reported experiments made by him and Bernhardt in which water-soluble medications—inulin, adrenalin, cardiac and narcotic drugs, etc.—were injected. (Insulin was rubbed up with olive oil, cholesterol in ether and deposited under the skin.) The curves demonstrated how the substance was gradually and slowly released from the deposits over a period of fifteen days, whereas in the case of ordinary injections all of the substance is absorbed within a few hours. STARR (Z)

Schmieden, Surgery of the Pancreas (Chirurgie der Pankreas) 5 Tg d ditsch Ger f C)  
Berlin 97

After a brief historical review of pancreatic disease in which he refers particularly to the work of Gusenbauer and the monograph of Koerte, Schmieden describes briefly the pathologico-anatomical picture. This is of three types: (1) necrosis, (2) hemorrhage and (3) inflammation. The first type is the most common.

One of the causes responsible for the high mortality of pancreatic disease is the digestion of the fine vessels in the omentum which leads to hemorrhage into the abdominal cavity. In the further advance of the condition fat necrosis develops and spreads by way of the lymphatics and by direct contact. It occurs in the abdominal cavity about sixteen hours after the beginning of the condition. Fat necrosis

may form in the extremities as the result of transportation by the blood stream. The course of the condition is so acute that peritonitis and sepsis do not develop.

In the treatment a knowledge of the possible modes of origin is important. The author mentions the following possible modes of origin: (1) by the penetration of duodenal contents into the pancreas through the duct of Wirsung or the duct of Santorini by the entrance of bile or chyme as a result of reflux through the common duct; (3) through emboli; (4) through retrograde venous thrombosis; (5) through traumatic insult; (6) as a result of infection from a duodenal ulcer; and (7) as a result of a duodenal diverticulum.

Characteristic of the condition is its rapid development which can be compared to the outbreak of a powder magazine.

In 66.8 per cent of the cases reviewed by the author the pancreatic disease was associated with biliary tract condition. It may possibly be regarded as a complication of cholelithiasis. In 14 cases are due to the presence of a stone in the passage of a small stone is a cause of acute pancreatitis. Therefore the aim of surgical treatment must be if possible to remove the cause of the condition by cholecystectomy or some other operation at the time of operation on the pancreas. Patients so treated 61.3 per cent were cured. Of those without a simultaneous operation on the biliary tract only 40 per cent were cured. The corresponding percentages given by other authors are 55.3 and 3.5.

The pancreas is a sensitive organ demanding great care in operations performed near it. Even the introduction of a sound into the pancreatic duct may have serious consequences. Care must be taken such as may occur in extirpation of the spleen, resection of the duodenum and other operations are dangerous. The abdomen should not be completely closed when it is believed that the pancreas has been injured or irritated. Diagnostic examination of the pancreas are to be avoided.

The author has seen 45 cases of pancreatic disease following operations on the stomach. The chief cause of the complication was the extension of a ulcer penetrating the pancreas.

Of the greatest importance in the treatment is a correct knowledge of the course of the pancreatic ducts. The author cites the classical description of Wirsung of 1642. Chirac and Chirac have described ten types of pancreatic duct. The embryological development must also be taken into account. An important source of danger is the very common hammer fist with adhesions to the pylorus. Also not to be underestimated are the acute edematous rests of pancreatic tissue which are often spread over the entire alimentary tract and play a rôle in postoperative peptic ulcer. In addition to this large number of causes there is also an unknown factor which determines pancreatic necrosis and the susceptibility of the pancreas.

the abdomen without causing damage to the peritoneum other than that of the organs to be removed

Drainage of a septic focus in the peritoneum is essential when it is known that the suppuration will continue and when general peritonitis is apt to occur if the abdomen is closed without drainage. On the other hand it may be possible to remove the septic focus without damaging the rest of the peritoneal surface.

Primrose emphasizes the importance of sound judgment in determining the indications for drainage. He condemns the theory that the introduction of a drainage tube into the peritoneal cavity is always a safe procedure and that it should be done whenever there is any doubt.

A case is reported which demonstrates the value of the intravenous administration of phenol as a means of increasing resistance to infection particularly infection due to the streptococcus hemolyticus. Evidence is cited which suggests that phenol thus employed increases the phagocytic activity of the blood and probably that of the tissues.

SAMUEL KAHN, M.D.

#### DAUER, J. B. Secondary Operations on the Abdomen. *A. Surg.* 9:71.

The majority of secondary operations are done for the sequelae of appendicitis, cholangitis, cholecystitis, cholecystitis, peptic ulcer and hernia. When they are grouped into an early, a late and a remote group it becomes apparent that the first two groups are usually necessitated by hemorrhage, a secondary collection, obstruction or fistula and that the remote secondary operations are demanded by intestinal obstruction, intestinal marginal ulcer and in rare cases the removal of a foreign body such as a sponge instrument or needle which is lodged when the abdomen was closed.

Later secondary interventions are most frequently required for adhesions or the persistence or recurrence of symptoms of disorders of the biliary or gastrointestinal tract. In the biliary tract the cause may be inflammation or stone of the common or hepatic duct which is inaccessible at the primary operation. A fistula is opened its way into the common bile duct. Other conditions necessitating later operations are cholangitis and chronic pancreatitis develop as a result of the advanced pathological changes found at the primary operation on adhesions and fistula. In the gastrointestinal tract the reason for the return of symptoms is very probably the omission of gastro-enterotomy at the original operation for the cause is either a chronic ulcer or the closure of an acute perforated ulcer.

Conditions occur from several months to several years after the primary operation are chronic subacute or acute obstruction due to adhesions, intestinal obstruction, recurrent inguinal hernia, marginal ulcer, malnutrition and persistent intestinal obstruction. After the closure of an acute perforated ulcer with gutta serena, the patient is

biliary tract disease, large peptic ulcers with considerable perulcerous exudate and diffuse suppurative conditions are especially pernicious as they may lead to pathological changes requiring repeated operative intervention.

The formation of peritoneal adhesions is a defensive reaction to stop the bacterial invasion. Frequently however the adhesions create a mechanical obstruction. The damage in such cases is due to chronic induration of the delicate submucosal and subserous tissue with mechanical interference due to contracting or constricting fibrous tissue in the form of membranes, bands or scars.

Acute appendicitis is one of the most common primary causes of secondary operations. Appendectomy may be followed by adhesions, intestinal obstruction or fecal fistula.

After surgery of the gall bladder and biliary tract adhesions to the hepatic and common ducts, the liver, the duodenum or the hepatic flexure are found in more than 50 per cent of the cases in which a secondary operation is done. These adhesions are formed as the result of infection, trauma, hemorrhage, congestion and stasis and failure to protect raw peritoneal surfaces.

Operation for peptic ulcer brings about a cure or at least marked relief but in a small percentage of cases postoperative symptoms are pronounced and operation may reveal adhesions or disease of an adjacent viscous—the gall bladder, liver, pancreas or appendix.

Various circles or a Peterson better describes it gastric ulcers may occur in four different ways from the backflow of duodenal contents through an open pylorus from regurgitation through the proximal loop from movement of the gastric contents into the proximal instead of the distal loop and their regurgitation through the pyloric opening and from backflow from the distal jejunal loop. In various studies of the function of the gastrojejunal stoma it has been found that in the same patient the food sometime passes through the new opening and sometimes through the pylorus. In some cases therefore the symptoms apparently subside when the gastrojejunostomy is closed the pylorus not having been materially altered surgically.

Marginal ulcers occur more frequently following gastrojejunostomy than following gastric resection.

Recurrence of an inguinal hernia following operation depends upon the type of the hernia, the degree of the herniation, the character of the involved structures, congenital influences, the patient's age, the type of the primary operation (including the type of anesthesia and the suture materials used), the occurrence of infection at the primary operation and the after-care and the daily routine following the patient's dismissal from the hospital. About 10 per cent of all inguinal hernias are direct hernias. These recur more frequently than the indirect type because of buffer tissues to the intra-abdominal force are more difficult to cure and retain in place.

SAMUEL KAHN, M.D.

due probably to lack of support of the undersurface of the left diaphragm fleeting bone pain and attacks of vomiting

STEWART states that spontaneous rupture of the spleen is now a recognized catastrophe but in most of the recorded cases of splenic rupture the spleen was pathological. Spontaneous rupture of the abdominal spleen occurs most frequently in malaria. Splenic rupture may be a complication of leukaemia typhoid pregnancy and acute infection.

The symptoms closely resemble those of traumatic rupture of the spleen. There is no uniformity of opinion as to whether the rent occurs most frequently on the concave or the convex surface. In many cases a subcapsular hematoma forms and ruptures later.

An apparently spontaneous rupture of the spleen may be a traumatic one with delay of the symptoms due to the fact that the hemorrhage is subcapsular at first or is prevented for a while by a temporary clot.

A case of spontaneous rupture of an apparently normal spleen is reported. Wiseman was able to find only six similar cases in the literature.

CYRIL J. GLASPEY, M.D.

### MISCELLANEOUS

WILSON A. J. Visceroptosis. *Lancet* 1919, ex 1, 60.

Visceroptosis appears to be more common today than it was thirty years ago. Its symptoms closely resemble those of recognized or latent lesions.

In every case present the characteristic symptoms of visceroptosis there is abnormal mobility of some part of the intestinal tract. All cases of visceroptosis show dilatation of the stomach or intestine but in the absence of an obstructive factor there is no hypertrophy of the muscular wall.

The accessory membranes which are seen in cases of visceroptosis are unquestionably of congenital origin; there is little or no evidence that they are formed as the result of chronic intestinal stasis. In patients with well developed ptosis there is often definite change in the general body structure. Such patients are relatively frail and thin with drooped shoulders a lordosis a narrow flat chest and a protruding flabby lower abdomen. In advanced stages of the condition the patient usually has abnormal mental characteristics with a tendency to irritable pomposity.

Virginal ptosis is a condition in which the limited mobility of the stomach affects only the abdominal body structure and does not affect the patient until late in life. There is no evidence that it predisposes to the development of gastric ulcer.

Visceroptosis is much more common in women than in men because in women the postural muscles are less fully developed. In men the symptom is not apparent until the abdominal stasis is well advanced.

The symptoms of visceroptosis closely resemble those of localized organic lesions. The treatment of which is almost entirely surgical. The patient is rarely free from discomfort but often there is no progress in the symptoms after a duration of many years. There is nothing characteristic about the pain. Vomiting is common and hiccups sometimes frequent.

X-ray examination is of greater value in the diagnosis than the history and physical findings. It is usually associated with atony of equal value with the positive findings is the absence of evidences of organic disease with similar symptoms.

In no case of visceroptosis is surgical operation treatment considered until medical measures have been thoroughly tried. In the medical treatment the attempt should be made to improve the patient's diet overcome the constipation increase the postural tone and improve the mental outlook.

Surgery should be attempted only when medical treatment has produced no benefit and then only if the symptoms are definitely localized to one viscus in which an organic lesion might be present. When operation is performed invariably it leads to an exacerbation of the symptoms rather than relief.

CYRIL J. GLASPEY, M.D.

WILKIE D. D. Acute Infections of the Lower Abdomen. *Brit. J. Surg.* 1919, 11, 33.

The author maintains that there are two separate and entirely distinct types of the pelvic viscer acute inflammation of the all antiseptic obstruction of the lumen. Acute appendicitis being primarily an infection of the appendix to the colon is pyrexia rapid pulse epigastric discomfort or a cramping and local tenderness and rigidity. Acute angio-peritonitis is a true acute epigastric pain and increasing tenderness with an increase in the pulse rate temperature. The local signs are those of tenderness and rigidity. Acute appendicitis of the true ileum is immediate operation. A uterine inflammation of the appendix is usually best treated in the same way but if it is unroofed until the fourth day and there is evidence of local abscess it is better to treat it on the expectant line until recovery takes place or the evacuation of the abscess is necessary.

The author's findings that in late cases of ileitis the inflammation is a local abscess.

Jejunum may be the average measure of 5 per cent of the total cases of ileitis of the true ileum is present. RICE, L. G. T. M.D.

Primrose A. Abdominal Surgery in the Presence of Infection. Edited by the Streptococcus Haemolyticus. *J. Surg.* 1919, 11, 6.

The urinary tract is not a part of the abdominal cavity. Therefore in abdominal surgery the urinary tract must be made to present a junction with the abdominal cavity. It is possible to treat the urinary tract with a

# GYNECOLOGY

## UTERUS

**Tóth I. Conservative Operation for Fibromyoma of the Uterus** (U b r d a s k o s e r v a t é o p e r e n e d e F i b r o m y o m e d e r G l e d m e t t e r) *Orvosi Szepes* 1927 xvii 28

During the past eight years the author has performed a radical abdominal operation in 47 cases of fibromyoma of the uterus with three deaths (6.34 per cent) and radical vaginal operation in 111 cases with three deaths (2.7 per cent). The causes of death in the three cases of abdominal operation were general lipomatosis ileus and thrombosis respectively. No fatality resulted in forty cases in which the myoma was a polypous development and was removed by torsion or crushing of the pedicle. In forty cases of submucous enucleation one death followed rupture of a bilateral pyosalpinx. Anterior hysterotomy was performed nineteen times because of the high location of the submucous growth.

In the cases of younger women every effort is made to preserve the uterus and the capability of conception. In forty such cases in which the abdominal approach was used one patient died a mortality of 2.5 per cent. In 26 of these cases the submucous tumor was pedicled in the remaining fourteen cases it was broadly sessile or even intramural.

In cases of myoma of the pregnant uterus operation is performed only when there is no hope of carrying the pregnancy to term. Of nineteen such cases twelve were operated upon radically and seven conservatively.

TLM ARY (C)

## ADNEXAL AND PERIUTERINE CONDITIONS

**Robinson M R. The Effect of a Castration Dose of Roentgen Rays upon the Rabbit Ovary. An Experimental Study with a Clinical Evaluation of the Problem of Ovarian Irradiation** *A J R* 1927 19 2

The ovaries of both virgin and gravid rabbits were subjected to castration doses of roentgen rays. The units of dosage and the physiological conditions corresponded to those of the clinic.

Of the three types of follicles the tertiary proved to be the most susceptible to radiation and the ovule the most sensitive part in the generative system. The interstitial gland (which fulfills the function of the corpus luteum) offers the greatest resistance. This variation in susceptibility is in accord with the Bergme-Troubadeau law. The more labile the kinetic state of a tissue the greater its radiosensitivity and in exactly the most stable the kinetic state the less is its response to

irradiation. During the gravid state the kinetic energy in the ovary is greatest and its radiosensitivity is most acute. During this stage not only the tertiary but the secondary and primary follicles are injured.

Robinson points out the fallacies in the experimental methods and data of men who have ascribed physical and mental defects of the offspring to irradiation of the parents. He draws the following conclusions from his experimental and clinical observations.

1. A castration dose of roentgen rays does not affect the primary follicles sufficiently to interfere with their normal function after the amenorrhoea is over. This amenorrhoea is due to the dominant and retarding influence of the interstitial gland (corpus luteum).

2. The primary effect of a castration dose is stimulative in character. There is a hastening of the maturing time of the follicles but the ovulation occurs before the cycle is completed. The so-called stimulating effect of small doses of roentgen rays is in reality an indirect result of foreign protein sensitization resulting from this breaking down of the ovules. In view of this it is safer to rely upon the oral or subcutaneous administration of specific glandular products.

3. Temporary castration can be accomplished and the dose required is in inverse ratio to the age of the patient.

4. There is no basis for the fear among clinicians that pregnancies following ovarian irradiation with temporary castration may result in offspring showing physical or psychic defects.

5. Ovarian irradiation during pregnancy particularly during the first half of pregnancy is detrimental to the offspring and should not be undertaken unless it is the intention to interrupt the gestation.

CHARLES H. HEACOCK, M.D.

**Mayfield A L. Papillary Cystadenoma of the Ovary** *N Y J Med* 1927 xvi 236

Mayfield reports a study of 100 cases of papillary cystadenoma of the ovaries. The frequency of these tumors varies from 13.5 to 45 per cent and they constitute from 16.3 to 18 per cent of all cystic ovarian tumors. The etiology and the histogenesis have not yet been defined but many theories have been advanced.

The symptoms usually appeared late and depended on the size of the tumor and the presence or absence of perforation of the capsule or torsion of the pedicle. In six cases the ovarian tumor was discovered during general examination. The most common symptom was abdominal tumor. Pain varying in type and location was present in 50 per

Hertz J Monod P and Roux Berger J L Abdominal Drainage the Method of Mikulicz Results in Thirty Four Cases (Du drainage abdominal a propos du procédé de Mikulicz résultats d près trente-quatre cas v t t na) *Bull et mém Soc nat de chir* 1927 L 1 308

The authors review thirty four cases in which abdominal drainage was established by the method of Mikulicz—fifteen cases of acute appendicitis two cases of cholecystitis one case of cancer of the rectum and sixteen cases of suppurative salpingitis.

The cases of acute appendicitis included ten with perforation and three with gangrene of the appendix. In six an abscess was formed and in nine general peritonitis developed. All of the patients recovered. In only one case was there a slight weakness of the abdominal wall (not a true eventration) and in only one a fecal fistula. The fistula was closed in ten days. In thirteen cases of appendicitis in which drainage was established with a rubber and gauze drain there were four deaths a mortality of 30.7 per cent and of the nine cases in which recovery resulted a fecal fistula developed in three purulent pleurisy in two and eventration in two.

Of the two cases of cholecystitis in which the Mikulicz drain was used one was a case of suppu-

tive cholecystitis and the other a case of calculous cholecystitis. Recovery resulted in both. In the first eventration developed and in the second a very adherent duodenocystic fistula and postoperative hæmorrhage.

In the case of cancer of the rectum the Mikulicz sac was used to prevent strangulation of the intestinal loop following an abdominoperineal amputation in which it was impossible to obtain satisfactory peritonization. The patient recovered.

The cases of suppurative salpingitis included two with generalized peritonitis and fourteen with localized peritonitis. Recovery resulted in all. In the cases with generalized peritonitis there was one fecal fistula and in those of localized peritonitis one small eventration. Hertz limited the use of the Mikulicz method to cases in which peritonitis had become generalized and those in which a long and serious septic operation was performed and great difficulty was experienced in obtaining peritonization.

The authors conclude that the Mikulicz method of drainage gives great security in serious cases and that complications are no more frequent following its use than following other drainage methods.

WALTER C BERRY MD

## MISCELLANEOUS

Whitehouse B. Some Problems of the Menstrual Function with Observations on the Relation of the Graafian Follicle and Corpus Luteum to Pathological Uterine Haemorrhage. *Lancet* 1917, cxxii, 7.

The generally accepted idea that the menstrual function in man corresponds exactly to the stage of proestrus of the lower animal is not correct. The haemorrhage from the genital tract in the mammal can and does occur in different species during proestrus and at the end of pseudo-pregnancy. Ovulation occurs in man between the thirteenth and seventeenth days of the menstrual cycle.

The author repeated Halban's experiment and actually excised the corpus luteum. It produced a menstrual period 36 to 48 hours after excision on the eighteenth day of the menstrual cycle. The following period occurred within a few days of the normal period. In excisions of the graafian follicle were made before its rupture on the thirteenth day of the cycle and the results were similar to those obtained with the destruction of the corpus luteum.

It is evident that both the graafian follicle and the corpus luteum contain an active principle the withdrawal of which from the circulation causes necrosis of the endometrium. The conception of the menstrual function has a practical application in the irregular uterine haemorrhage associated with trauma, fibroids, ovaries prolapsed ovaries and chronic inflammatory disease of the ovaries due to the death of mature graafian follicle and pathological corpora lutea.

The commercial vaginal and lutein extracts are unsatisfactory probably because they are not made from normal ovaries during proestrus or the early months of pregnancy. *THE LANCET* 1917.

Feldweg P. The Results and Value of Roentgen Castration (Uterine Follicle and Ovary Roentgen Irradiation). *Med. Klin.* 1917, xlii, 101.

The author reports the results of roentgen castration in 20 cases. Re-examinations were made one to two years after the irradiation in an effort to determine to what extent the undesirable effects outweighed the curative results.

In 83.6 per cent of the cases the subjective results were satisfactory; in 8.6 per cent the objective gain was overbalanced by unpleasant sensations while in 7.8 per cent the women regretted having taken the treatment.

There was an average increase in weight of 5 kgm. The symptoms of loss of function were about the same at the various periods of life, a fact contrary to the usually accepted belief that the symptoms are especially to be feared in young women. In 33 per cent of the cases there was complete loss of sexual desire and pleasure after the irradiation; in 37 per cent these functions remained unchanged while in the rest they were more or less diminished.

In hyperfunction of the thyroid gland castration is beneficial while in hypofunction roentgen castration is often followed by a marked accumulation of fat.

Most of the failures occurred in women with a labile nervous system or psychopathic taints. In such women however any sort of an operation is often blamed unjustly. Nor must we forget the psychic influence of the laity and physicians who consider roentgen castration dangerous.

A study of constitutional types shows that athenic females in general react more favorably than the sthenic—an observation that can also be made concerning the spontaneous climacterium. In general it appears that there is no basic difference between the climacterium produced by roentgen irradiation and the natural climacterium.

By narrowing down the indications the failures can be reduced for that reason psychopathic females are best entirely eliminated. Great care should be used in cases in which function of the thyroid gland is deficient. Greater caution necessary in well built and well nourished women than in delicate ones. Before beginning the treatment the patients should have their attention called to the sequelae and they should be protected against the effect of outside influences. The author does this by handing the patient a special printed slip. In the treatment of the various climacteric symptoms the use of blood letting in large amounts which may even be repeated and of saline purgatives have proved of greatest benefit.

Applied according to these principles roentgen castration is a beneficial curative remedy.

*VOY. SCI. 18. RT. (G.)*

cent of the cases. Menstrual irregularity usually menorrhagia or metrorrhagia occurred in 52 per cent of the cases. In half of the cases vesical symptoms were manifested. There were miscellaneous gastro intestinal symptoms including constipation and vomiting.

Examination disclosed the presence of abdominal tumor in ninety six cases and ascites in thirty one. It was often impossible to palpate the tumor separately from the pelvic organs. Tumors occurred more frequently on the left side. The greatest difficulty was encountered in differentiating cyst adenoma and uterine fibromyoma.

In forty three cases the tumor was bilateral and in fifty seven cases it was unilateral. Implants on other organs were common and there was metastasis to lymph nodes in four cases. Histologically there were three types of tumor the first with regular layers of cuboidal or cylindrical epithelium and abundant stroma uniform in arrangement and structure the second with malignant changes or cell in the transitory stage and the cells and stroma in various arrangements and degrees of differentiation and the third with definite malignant change in the cells and stroma.

Prognosis depended on the presence or absence of perforation the degree of malignancy and the extent of the involvement of the surrounding tissue.

Regarding the degree of malignancy 44 per cent of the patients lived without recurrence of symptoms for an average period of seven years and seven months and 35 per cent of the patients died from recurrence within an average period of two years and two months after operation.

Klein P. Malignant Chorion-Epithelioma of the Tube Following Extra Uterine Pregnancy (Ulcus chorioepitheliale malignum de tuba hysterica dact.) *A. J. G.* 1917, x, 66.

The author reports the sixteenth case of malignant chorion epithelioma of the tube following extra uterine pregnancy that he has observed. The patient a 24 year-old nullipara was admitted to the clinic in a very anemic condition due to hemorrhage. She had not menstruated for four months.

A dark pedicled tumor the size of an olive at the uterine orifice broke off when touched. Another tumor about the size of a small orange was located behind and to the right of the uterus. The portion was firm and the uterus small. The heart and lungs were normal. When examined microscopically the tumor which broke off proved to be a chorion epithelioma.

At operation the uterus was found to be pale. The right tube normal at its origin later became thicker than a thumb and terminated in a hematocele as thick as as large as an apple. The left adnexa were normal. Wedge excision of the tube was performed.

Severe genital hemorrhages occurred five days after operation and a tumor the size of a hazel nut

appeared on the opposite wall of the vagina. The mass was cauterized. Another profuse hemorrhage occurred nine days later and a tumor the size of a walnut was excised from the same place. Transfusion was performed for the severe anemia and the vagina and abdomen were repeatedly exposed to the X rays. Multiple pulmonary metastases found on the left side three weeks after the operation were treated intensively with the X rays. Examination one year later showed a perfect cure. Physical examination and roentgenograms of both lungs being negative.

The author's case is the only one on record in which treatment of this particular condition was followed by a cure. *Nov. W. J. Surg.* (C)

Miller C. J. The Rational Treatment of Tubal Disease. *S. & G. J. C. O.* 1917, xl, 110.

Miller advocates the conservative treatment of tubal disease. The operation is less tedious and dangerous the postoperative complications are fewer and the mortality is lower when the patients are allowed to recover completely from the original infection before any operation is performed. Expectant treatment may result in as high as 85 per cent of complete cure. The only argument in favor of early operation is expediency.

Miller's routine treatment is absolute rest in bed until the temperature has been normal for ten days or more. During this period the patient is treated symptomatically and examined biweekly special attention being paid to temperature fluctuations. When operation is performed the extent of the procedure is based on the conditions present but usually both tubes should be removed this is always done if the condition is tuberculous. Special effort should be made to conserve ovarian tissue.

T. Lloyd Bell, M.D.

## EXTERNAL GENITALIA

Schubert G. Twenty Cases of Operative Formation of a Vagina by the Schubert Method (Zanzig F. H. J. S. H. d. n. l. d. n. h. S. h. t. n. l. Z. i. d. b. l. f. G. J. 1917, x, 8).

Schubert defends his method for the production of an artificial vagina against that of Rabino who in 1916 published his results in six cases operated upon by the Baldwin method. Schubert reviews all of the cases done by his method by himself and by others as collected from the literature or by personal communication. There were in all 20 cases with a mortality of 15 per cent while Rabino reports a mortality of 12 per cent.

The most important point in Schubert's method is making child bearing possible. This can be done only when the vaginal defect is associated with a menstruating uterus. Schubert refers to Wagner's classical case in which the woman later gave birth to three children. For the formation of the vagina Schubert uses the large intestine. Baldwin the small

*Ill. W. J. Surg.* (C)



and non protein nitrogen values and by low normal or decreased sodium chloride and plasma protein values

The administration of alkalies is dangerous as there is either a normal acid base balance a compensated alkalosis (hydrogen ion concentration normal carbon dioxide high) or a compensated alkali deficit (hydrogen ion concentration normal carbon dioxide low). The last finding is rare.

The vomiting of pregnancy should be treated by supplying the deficiencies by food fluid and salts. Each case must be treated according to its particular requirements.

Experimental work indicates that insulin with the intravenous administration of glucose restores the glycogen stores much more quickly than the intravenous administration of glucose alone.

Long period of vomiting and semi starvation produce changes in the body which cause death without demonstrable pathological changes. In such cases death may be due to pathological physiological changes in the body cells.

In conclusion the authors state that the systematic study of the metabolism in general and particularly of the carbohydrate metabolism together with a study of the acid base balance of the body will yield more information with regard to the etiology pathology and treatment of the vomiting of pregnancy than speculations concerning toxins or derangements of glandular function.

E. L. CORNELL M.D.

Mooe W. F. and L. W. and J. S. Continuous Endobronchial Aspiration for Pulmonary Edema Complicating Eclampsia. *Am J Obst & Gyn* 97: 55

For continuous endobronchial aspiration the authors use a flexible spiral tube of German silver wire which is 52 cm long and has a diameter of 3.5 mm. At the proximal end there is a collar for the attachment of rubber tubing. The distal end terminates with openings on the side and end. The tube is coated by a special process with a very thin film of rubber which does not materially increase its diameter. The proximal end emerges from the mouth is secured by means of a head band with an adjustable wire joint hold. The tube is connected with a suction machine developing about 10 lbs of negative pressure. The position of the patient is the same as that used for bronchoscopic work at the Jackson Bronchoscopic Clinic.

The tube is used in one of the following pulmonary edema. There is no noticeable embarrassment of respiration while it was in position. During its insertion a severe convulsion lasting four minutes occurred but this in no way interfered with the position of the tube or with breathing. The patient's color remained good and when the tube was in position there was an increase in the number of convulsions noted. There was no coughing during the introduction of the tube or while it was in place.

I. L. C. R. ELL M.D.

Hochenbichler A. The Maternal Mortality of Eclampsia in Our Clinic in the Period from January 20 1910 to September 20 1926 (Ueber die mütterliche Eklampsie sterblichkeit an unserer Klinik in der Zeit vom 20. 1. 1910 bis 20. 9. 1926). *Zentralblatt für Gynäkologie* 1927: 1486

In the period from January 20 1910 to September 20 1926 at the Obstetrical Clinic and Midwife School of Vienna there were 15 cases of eclampsia with fifty maternal deaths a mortality of 15.6 per cent. In the thirty seven cases in which treatment with artificial sunlight was given the mortality was 5.4 per cent whereas in the 238 cases which were not treated in this manner the mortality was 20.1 per cent.

The infant mortality of the two groups showed no noteworthy difference. In the cases in which heliotherapy was given it was 30.7 per cent and in the others 37.3 per cent.

The author believes that the irradiation relieves the heart and lungs of strain by drawing the blood to the skin. In hypertension and eclamptic attacks a heavy strain is placed upon the heart. Heliotherapy often causes a reduction in the blood pressure of 50 mm. Riva Rocci in ten minutes. This treatment is much less dangerous than the use of chloral and venesection.

FREUND (G)

Vignes H. Habitual Abortion (A propos de habitude d'avortement). *Soc. Obst. et Gyn. de Paris* 1927: 34

The patient whose case is reported in this article was a woman of 24 years who consulted the author in July 1914 at the beginning of her third pregnancy to determine the cause of two previous abortions in order that a third might be prevented.

She was married at the age of 22 years. After her first abortion which occurred in the third month of pregnancy the embryo was retained for two months. The second abortion also occurred after two months. Her last menstruation before her third pregnancy occurred from the twenty third to the twenty sixth of April. She complained of nausea vomiting and violent headache. Twice there had been a slight vaginal discharge of a type to suggest the beginning of another abortion. The uterus was found 7 cm above the pubis surrounded by considerable edema.

Two days later a third abortion occurred. Two Wassermann and two Hecht tests were performed on the patient's blood and one each on that of her husband but all were negative.

On histological examination the fetal parts were found to be normal but the decidua showed diffuse infiltration inflammatory nodule and abscesses.

Mercurial treatment alternating with bismuth was prescribed.

In June 1925 the patient was seen again. Her last menstrual period had occurred from April 11 to 14. She still complained of headache but there had been no vomiting. Treatment with bismuth by intramuscular injections was prescribed.

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Cruckshank J N Some Chemical Aspects of the Toxæmias of Pregnancy *Glasgow Med J* 1927 cvii 1

The author classifies cases of toxæmia clinically as follows

1 Albuminuria—cases of toxic albuminuria of pregnancy which show no other noteworthy toxic symptom

2 Pre-eclamptic toxæmia—cases showing albuminuria of pregnancy associated with other definite toxic symptoms but not falling into Groups 1 or 4

3 Nephritic toxæmia—cases of albuminuria of pregnancy definitely associated with nephritis

4 Eclampsia—cases of albuminuria of pregnancy associated with other toxic symptoms including eclamptic convulsions

Cruckshank states that according to the findings of all recent investigations there is no foundation for the theory once advanced that eclampsia is closely related to uræmia. Many cases of eclampsia and to a lesser degree cases of pre-eclamptic toxæmia show quite a definite azotæmia although in only exceptional case is it of the high grade found in chronic nephritis. Cruckshank suggests that there may be some form of sensitization to foreign protein or some form of poisoning by its decomposition products.

In the author's series of cases the highest values for urea nitrogen were found in the blood of women with eclampsia and pre-eclampsia but a striking feature was the low readings for blood urea which were made in many of the cases of pre-eclamptic toxæmia.

With regard to the relation between the total non-protein nitrogen and the urea nitrogen it was noted that in a large percentage of the patients with pre-eclamptic toxæmia an abnormally low proportion of the non-protein nitrogen of the blood was present as urea nitrogen. Uric acid as a rule quite definitely increased in the blood of eclamptic patients while in the other groups this increase was not a feature. Indeed in the cases of pre-eclamptic toxæmia the amount of uric acid tended to be low. Like the uric acid preformed creatinine was most abundant in the blood of eclamptic women and least abundant in that of toxæmic women.

None of the four types of toxæmia described by the author is characterized by gross disturbance of the amounts of nitrogenous constituents of the blood.

The chief conclusions to be drawn from the study of the nitrogenous metabolism in the toxæmias of pregnancy are the following

1 While there is gross retention of nitrogen such as is found in uræmia many cases of pre-eclamptic toxæmia and eclampsia show quite an appreciable degree of azotæmia.

2 Protein appears to be harmful in these cases mainly because of its protein structure but although to a lesser extent because of its nitrogen content.

The author characterizes as erroneous the theory that a primary chloride retention is responsible for the oedema.

In every group of cases studied there were a few which showed either unusually high or unusually low readings for blood chlorides but the mean values of the readings in each group were within normal limits and none showed any characteristic alteration in the chloride content of the blood.

It appears that the normal pregnant woman at rest in bed and on an ordinary mixed diet passes much less urine than is generally regarded as normal for the healthy adult. When a simple albuminuria or nephritis complicates the pregnancy and the diet is restricted to moderate quantities of fluid alone a good diuresis results in most cases. In the more severe forms of toxæmia however this diuresis tends to disappear so that both in pre-eclamptic toxæmia and in eclampsia itself the urinary output is small as compared with the fluid intake.

The general conclusions drawn by the author from these observations are that the peculiarities of the composition of the blood and urine which characterize the later months of normal pregnancy are maintained and may be exaggerated in all of the toxæmias of the later months of pregnancy that while there is no particular tendency to azotæmia in any of the varieties studied a moderate degree of nitrogen retention may be present in the developed eclampsia and that the hydraemic state of the blood which is characteristic of late pregnancy and the oedema which develops in certain cases of toxæmia do not show any relationship to the chloride content of the blood or to the output of chlorides in the urine. ROL. D. S. C. M.D.

Dieckmann W J and Crossen R J Changes in Metabolism and Their Relation to the Treatment of Vomiting of Pregnancy *Am J Obst & Gynec* 1927 10 3

Vomiting of pregnancy is due to a derangement of the maternal metabolism particularly of the carbohydrate metabolism.

The pathological urine and blood findings and the signs and symptoms are due to vomiting, starvation and dehydration.

Severe vomiting of pregnancy is characterized by normal or increased carbon dioxide hydrogen in

formed and followed by a Wertheim hysterectomy with Mikulicz drainage

2 If the general condition is poor if the patient is very fat if the cancer is inoperable or if there are doubts as to operability a caesarean section followed by supravaginal amputation is done or a classical Porro operation is performed and radium is applied immediately by the abdominal and vaginal routes. If after four weeks the neoplasm has regressed and if the cervix is mobile secondary ablation by the vaginal route is then performed

S. LVAIORE DI PALMA M D

## LABOR AND ITS COMPLICATIONS

Raschhofer G Face Presentations (Ueb. G. ht. halt n en) Zi h f G b ish G) k 927 c 583

In 82631 births occurring in the Second Gynecological Clinic of the University of Vienna during the years from 1900 to 1925 face presentation occurred in 303 (0.36 per cent). The ratio of face presentations in the first diameter to those in the second diameter was 16:13 and the ratio of primipara to multipara was 1:33. The great majority of the women (30.82 per cent) were between 20 and 30 years of age and 29.64 per cent were between 25 and 30 years old. In the primiparae the duration of labor was twenty-four hours or longer whereas in the multiparae it ranged from twelve to twenty-four hours. Recurrence of face presentation in subsequent pregnancies seems to be very rare.

The majority of the infants (263) were born at term but thirty-seven were premature. Sixty-five and nine tenths per cent were born alive and active and 17.7 per cent were born with asphyxia. Of the latter 4 per cent were revived. There were sixty-one stillbirths.

The author compares these statistics with older statistics.

The second part of the article is a discussion of the etiology of face presentation. A narrow pelvis is found in 3 (1.35 per cent) of the cases. In ninety-nine of these the pelvis is of the flat rachitic type and in forty was generally contracted. The contraction is usually of slight or medium grade. Only 30 per cent of the narrow pelvis exhibited a conjugata vera as low as 8.5 to 9.6 cm. The author believes that the importance of contracted pelvis as a cause of face presentation has been underestimated. He agrees with Kemmner that the chief cause of presentation in the first position is a congenital defect of development in the upper part of the neck and the occipital bone.

The factors which may lead to presentation with extension of the head as indicated by the author's cases are summarized as follows:

1. Rushing of the chin away from the chest. In sixteen cases (5.2 per cent) this was due to a congenital stricture in the thorax. In the presence of a large coil of the umbilical cord between the chin and the chest a dislocation of the interposition of an arm

of the fetus. No instance was observed of twins in a longitudinal position presenting in the pelvis simultaneously with the occiput of one over the linea innominata.

2. Shortness of the fetal neck especially in the posterior aspect.

3. Variations in the position of the fetus due to increased fetal mobility.

In six cases there was hydramnios with smallness of the fetus. In thirty-six cases abnormal flaccidity of the abdominal wall and in five cases abnormal looseness of the joints of a macerated fetus.

Delivery was effected without artificial aid in 83 per cent of the cases. In ten cases there was an abnormal backward rotation of the chin.

Among other etiological factors such as transverse position of the uterus and transverse and oblique position of the fetus the interposition of small parts and low implantation of the placenta the author ascribes considerable importance to the shape of the fetal head (marked thinning of the occipital bone). He believes that in 30 per cent of the cases the fetal head is of the dolichocephalic type.

In conclusion the author describes further the clinical course of labor in face presentation. The old rule that in cases of face presentation labor should be allowed to proceed spontaneously if possible is given further support by the recent statistics from Vienna.

W. HEPRITZ (G)

Murray E F Rupture and Incision of the Uterus (Ed nb gh M J 927 x Ed nb gh Ob t S c 9)

Murray believes that the danger of rupture of a caesarean section scar has been exaggerated. In only one or two of a series of about eighty cases of repeated caesarean section seen by him in a period of five years was the scar area thinner than the surrounding tissues and in these cases it was tough and firm and showed no evidence of threatened rupture. A rupture occurred in only one case. Murray believes however that a uterus that has been sectioned should be spared as much as possible at a subsequent confinement. This should be done by early section when there is disproportion or by the use of the forceps when the os is fully dilated.

Traumatic rupture occurs after version. The danger of performing version when the liquor has drained away the uterus is tonically contracted. Bandl's ring is in evidence and the fetus is tightly gripped cannot be overemphasized. Bandl's ring is frequently detected only when with the patient under anesthesia the hand is inserted to perform a version. There may be no external evidence of it. Bandl's ring is better described as Bandl's band as a broad zone of the uterus is in tonic contraction.

After version the author makes it an invariable rule to remove the placenta manually. This decreases the danger of hemorrhage and excludes the possibility that a rupture may be overlooked.

Traction of the head through an incompletely dilated os whether with the forceps or as an after

On July 24 the patient noticed the cessation of the menses due to the pregnancy but later she developed a dental abscess and suffered with an affection of the kidneys and ureters particularly on the left side. Some vaginal bleeding is also noted. On July 30 a fourth abortion occurred.

The histological findings were the same as after the third abortion.

In September 1925 the patient again consulted. At times complaining of frequent chill. From her history it was thought that her condition might be due to pyorrhea and she was advised to have her teeth attended to.

On February 6 she returned stating that she was again pregnant and complained of gastric and renal disturbances and light menses.

Bacteriological examination of the urine was negative. Examination of the vaginal secretion showed streptococci, staphylococci, pseudo-diphtheritic bacilli and colon bacilli. Cultures from the gums showed streptococci, amebae and pusilla.

An autogenus vaccine was prepared from the buccal and vaginal streptococci, staphylococci and pseudo-diphtheritic bacilli. Twelve injections were given. The first injection caused a pseudo-phlegmonous reaction which was quite intense. The leucorrhoea at first became more profuse but then decreased and finally ceased.

Another bacteriological examination of the vaginal secretion made in May was negative. On October 17 1925 the patient was delivered of a living female child weighing 3.60 gm. In the puerperium she developed a fever ranging from 37 to 38 degrees C. for which injections of a stock vaccine of streptococci were given. Four weeks later an abscess formed in the breast.

The child developed ophthalmia (staphylococcus) and then otitis. From its impetigo cruralis, catarrh and from other signs and symptoms the pediatrician who examined it concluded that it was syphilitic.

The author believes that in spite of the negative Wassermann tests syphilis may have had something to do with the patient's condition. The habitual abortion was due chiefly to the blood causing the pyorrhea of the colon and that the vaccination was responsible for the continuation of the fifth pregnancy to term.

S. L. ATKE, D. P. L. M., M. D.

Reeb, Cancer and Pregnancy (Cancer et grossesse). *Gynecol. et Obstet.* 1927, 5.

Reeb reports a case in which a squamous-cell epithelioma of the cervix was present. A hysterectomy and a cesarean section was performed under the direction of the author and a normal child of 5000 grams was born. The section was followed immediately by a complete hysterectomy with removal of the parametrium.

The co-existence of a cancer of the cervix with pregnancy at term is rare. The case reported as the only one in more than 9000 deliveries in the

author's list. He reports 1 case, three cases seen by him in the gynecological clinic of Strasbourg in which the cancer developed between the second and fifth months of pregnancy. In a review of French obstetrical literature published since the war he found only twelve cases of uterine cancer associated with pregnancy. Of the six in which the lesion occurred in the first half of pregnancy four were operable. Of these four operable cases a vaginal extirpation was done in two, a Wertheim hysterectomy in one and a radical hysterectomy in one. The inoperable cases were treated with radium.

Of the six cases in which the cancer developed in the second half of pregnancy three were operable. In one of the three operable cases a cesarean section and amputation of the cervix were done in one, a radical hysterectomy in one and a radical hysterectomy in one. In the other two operable cases the cesarean section and hysterectomy were done. In the inoperable cases the cesarean section and hysterectomy were done. In the third case a cesarean section and hysterectomy were done. In the fourth case a cesarean section and hysterectomy were done. In the fifth case a cesarean section and hysterectomy were done. In the sixth case a cesarean section and hysterectomy were done.

The second cases in which radium was applied are his usual briefs. The results of the treatment were as follows: a recurrence after two years in one case (operable), no recurrence after fifteen months in one case (operable), recurrence after three months in one case (inoperable), recurrence after ten months in one case (inoperable), and death soon after the treatment in one case. In two cases in which doses of radium were applied to the cervix the abdominal and vaginal route the lesions completely disappeared after several weeks but the time till too short to warrant a definite conclusion.

Of the five cases in which operation was performed death occurred soon after the operation in one and a recurrence developed in two. Two of the patients were free from symptom after eight years.

The author gives the following treatment in this type of case:

DURING PREGNANCY

If the cancer is peral and the histological all radium used and four weeks later a Wertheim hysterectomy performed.

If the cancer is operable and the histological all radium used and four weeks later a Wertheim hysterectomy performed.

If the cancer is inoperable and the histological all radium used and four weeks later a Wertheim hysterectomy performed. If the cancer is inoperable and the histological all radium used and four weeks later a Wertheim hysterectomy performed. If the cancer is inoperable and the histological all radium used and four weeks later a Wertheim hysterectomy performed.

AFTER DELIVERY

If the general condition is good and if the tumor is small, perform a cesarean section and per-

reported in the absence of a high blood pressure the presence of a very high blood urea without convulsions (388 mgm. on the eighth day) the absence before labor of all signs of severe toxæmia except œdema and glycosuria and the occurrence of recovery notwithstanding extensive necrosis of the kidney  
BRUCE A. HARRIS M.D.

### MISCELLANEOUS

Mosher G. C. A Study of Maternal Deaths *J Med Cincinnati* 1917 viii 164

According to the Census Bureau (statistics received July 1916) Italy has a total puerperal mortality rate of 40 to 10 000 births with a death rate from puerperal sepsis of 16 Denmark has a maternal death rate of 10 to 10 000 births from sepsis and a mortality from all puerperal causes of 17.5 The United States has 68 deaths to the 10 000 births Heaney of Rush Medical College while in Scandinavia last summer learned that the Scandinavian maternal mortality was 9 to the 10 000 births while in the birth registration area in the United States in the same period it was 70 to the 10 000 A bulletin of the Children's Bureau at Washington places the United States seventh in infant welfare and fourteenth among seventeen civilized nations in maternal welfare its death rate being exceeded only by the death rates of Belgium Spain and Switzerland

Confronted with these facts we must admit that conditions in America are far from ideal The estimated population being 111 000 000 and the annual birth rate 500 000 it behooves us to find the cause for this high risk rate in pregnancy and labor and see what we can suggest to improve our statistics

It should be borne in mind that a quarter of a million women in the rural districts of the South are delivered by midwives without training that the increasing scarcity of doctors in the rural districts makes the midwife a necessity and her elimination a problem and that the education of our medical students in practical obstetrics is insufficient their entire training being given in attendance on six or eight deliveries in an out patient department under the tutelage of an inexperienced interne It should be remembered also that our adjusted rates include the colored race which still shows a mortality of 111 a puerperal case is rate of 38 and a death rate from other puerperal causes of 73 nearly double that of the white mothers

Normal pregnancy is not the rule in our generation One authority estimates that 50 per cent of all pregnant women show some effects of toxæmia which he classifies as pathological another that about 25 000 women annually lose their lives from the direct or indirect effect of pregnancy and labor

Maternal deaths are traceable mainly to sepsis eclampsia accidents of labor (including hemorrhage) and unwarranted cesarean section Sepsis

infection eclampsia and accidents may be largely prevented by intelligent care Cesarean section should be limited to the indication and should never be undertaken without expert obstetrical consultation

Chief among the many suggestions made to reduce maternal mortality and morbidity statistics is education to include the practicing physician the medical student the midwife and the expectant mother A popular suggestion for the reduction of sepsis is the compulsory reporting of every case of puerperal sepsis following abortion or delivery at term Some leading obstetricians are opposed to this but in sixteen states it has been adopted Among the suggestions to prevent eclampsia antenatal care comes first The remedy prescribed for unwarranted cesarean section is adherence to the recognized indications and obstetrical consultation in every case

To those of us who are apt to look on the gloomy side of the picture consolation can be derived by looking back Cesarean section once meant a maternal death rate of 100 per cent A few years ago we did not know that eclampsia was preventable Further comparison of the record of yesterday with those of today has convinced us that we are on the road to knowledge we must not halt satisfied with the progress made A long stretch of that road must yet be covered before we reach the goal It must be remembered that of seventeen civilized nations we are seventh from the top in infant welfare and fourteenth from the top in maternal welfare

The practice of contraception which extends back to Biblical times has been a matter of discussion for centuries In the last few years through world wide propaganda known as birth control this knowledge formerly safe in the hands of the physician and regarded as something to be imparted only when its use was justifiable has been acquired by thousands of women of every age and condition married and single to be used indiscriminately without heed of the moral or physical outcome

In America birth control except in the special case is a menace it is a doctrine that applies to the wrong elements of the population Our potential parenthood is decreasing In the last forty years there has been a drop of 10 per cent in the number of persons marrying while divorce has increased 92 per cent Our old New England and Virginia families are gradually becoming extinct whereas the insane the defective and the criminal are in ever increasing numbers overcrowding our State institutions

Kosmak points out that artificial restriction in the early years of married life may produce serious consequence and lead to subsequent sterility or hide the presence of this condition until too late for its correction He advises that training in sex education be begun in the schools in a study of biology

PETER CRAWFORD M.D.

coming head in breech presentation and the slipping off of forceps applied through an incompletely dilated os are responsible for varying degrees of trauma to the cervix and the lower segment of the uterus

The author emphasizes also the severity of trauma which may occur even in spontaneous delivery at term or in premature delivery. Cervical lacerations often extend up to and beyond the vault. In the cases of patients with a history of repeated miscarriage or premature labor investigation often revealed lacerations beyond the cervix to the body of the uterus. Drugs and curettage have been of no value in the treatment and even cervical repair has not been satisfactory.

The author attempts to correct the condition by repairing from above. The broad ligament on the affected side is opened as for a Wertheim hysterectomy; the ureter is isolated; the uterine vessels are ligated outside the uterus and the cervicovaginal juncture is laid bare. The vaginal vault is then opened and the tear thoroughly exposed through out its entire extent. All scar tissue is excised and an anal muscle joined to muscle with stout catgut. The vault and broad ligaments are then resutured.

Inversion of the uterus is rare. It is difficult to find evidence that the commonly stated causes, namely, pressure on the relaxed fundus during expulsion of the placenta or traction on the cord are responsible. In the author's opinion the arrangement of the uterine muscle is the chief contributory factor. It is generally believed that the upper uterine segment is thick and muscular and that the lower uterine segment is thin. This is true in the majority of cases but Murray has often found at caesarean section that the greatest thickness of muscle tissue is at about the middle of the uterus and that in some cases the upper part of the uterus is almost as thin as the lower segment. In such cases it would be quite easy for the thin portion to be pushed or pulled or even spontaneously invaginated and gripped by the thicker mid zone of muscle. CHURLES F. DuBOIS, M.D.

Ryberg, C. M. Some Experiences Concerning Placental Fragments Retained at Parturition. *Acta Obstet. Scand.* 2: 927, 53.

It is sometimes difficult to determine whether a placental fragment has been retained or not. The most serious symptom of placental retention is hemorrhage. In 55 per cent of the cases reviewed by the author the hemorrhage began during the first week after delivery and in 36 per cent in the second week.

They occurred in thirty (70 per cent) of forty five cases. In all but one it began during the first week.

In half of the cases the placental fragment passed spontaneously. Active removal has not been proved inferior to spontaneous removal. In cases of poorly diagnosed retention it is better to remove the fragment as soon as possible.

## PUERPERIUM AND ITS COMPLICATIONS

Crook, A. Necrosis of the Cortex of the Kidney After Labor. *Pr. Roy. Soc. Med. Lond.* 1925, 18: 49.

Necrosis of the cortex of the kidney is extremely rare. Only nineteen cases have been reported. It has occurred not only after pregnancy and labor but also in cases of corrosive sublimated poison, scarlet fever, diphtheria, pneumonia, peritonitis and carcinoma of the stomach.

The pathological renal changes are areas of necrosis in the cortex of the kidney, thrombosis of the renal vessels, chiefly the intralobular vessels in the middle zone and signs of pre-existent renal disease (in about half the cases). In most cases the lesions show a symmetrical arrangement. Under the capsule of the kidney there is a narrow zone of tissue which appears to be comparatively healthy. The liver is pale and the spleen presents necrotic foci. In the pyloric intestines and suprarenal glands hemorrhagic foci are found.

In the author's cases the symptoms included vomiting, headache and epistaxis. The systolic blood pressure was never over 120 mm. nor under 95 mm.

With regard to the relation of old renal disease to the occurrence of convulsions, Crook concludes that there is as yet no evidence to prove a definite relationship between an old nephritis and eclampsia.

Suppression of uric acid considerably in the cases reviewed. No light was thrown on the problem as to whether the thrombosis precedes the necrosis or vice versa.

Crook believes that there is a close relationship between eclampsia and cortical necrosis, but that the two conditions cannot be considered identical.

In all except one of the cases reviewed the fetus was born dead and prematurely. In the one exception twins were born alive at the eighth month.

Decapsulation of the kidney lowers the intracapsular pressure but can hardly have a very immediate effect on uræmia.

It is suggested that in some toxic pregnancies the condition may be initiated by retention of water alone. If the assumption is correct that pregnancy becomes toxic when there is interference with the metabolism and the elimination of water, also the syndrome might be attributed to the degree of this interference and its effect on other metabolic processes. This assumption is supported by (1) the association of the pituitary gland with growth and the elimination of water; (2) the clinical observation in some pregnancies of signs similar to those of acromegaly; (3) the evidence of the relation between the glands of internal secretion and metabolic processes; (4) the effect of pregnancy on these glands; (5) the fact that no condition exactly similar to toxic pregnancy is known to occur in animals.

The author reports a case which terminated in recovery. This case differed from most others

Incision of the lumbar fascia revealed considerable distention of the retrorenal leaf of the perirenal fascia. The fascia was fluctuant and had the appearance of containing fluid under pressure. On incision of Zuckerkandl's fascia, 100 ccm of urine was liberated into the incision. The pelvis was then palpated and a stone about 1 cm in diameter located at the ureteropelvic juncture. In the pelvis above the calculus there was a small aperture from which the urine exuded. This was enlarged and the calculus removed through it. It was then closed with interrupted No. 00 catgut sutures. A soft rubber tissue drain was placed against the pelvis and brought out through the upper end of the incision. The wound was closed in the usual manner.

The diagnosis was calculus in the right kidney pelvis and ruptured hydronephrosis with urinary extravasation.

The authors draw the following conclusions:

1. Back pressure into the kidney due to insufficient drainage may destroy the major portion of the organ and cause spontaneous rupture of the parenchyma or pelvis.

2. Spontaneous non traumatic rupture occurs in kidneys previously involved by some pathological condition such as tuberculosis, acute focal infection, abscess formation, haemophilia, infarction by dronophrosis or polycystic degeneration.

3. Rupture of the parenchyma is far more common than rupture of the pelvis.

4. Rupture of the parenchyma is likely to be accompanied by perineal hemorrhage whereas rupture of the pelvis or ureter is usually followed by extravasation of urine without hemorrhage.

5. Immediate surgical intervention is the only successful treatment. If the patient is seen early removal of the obstructing calculus conservative repair packing and drainage will suffice.

6. In advanced cases nephrectomy is the treatment of choice as it is likely to be followed by complications.

LOUIS GRODINSKY, M.D.

Sapir O. Th. State of the Glomerulus in the pelvis of Hypertrophy of the Kidneys of Rabbits  
1 J. P. H. 9 39

G. Lestti and V. La Santa were the first to make a careful investigation of hypertrophic kidneys. They arrived at the conclusion that following the removal of a kidney in young animals there is a genuine hyperplasia of the glomeruli and tubules of the remaining kidney. Full grown animals however show under similar conditions only plain hypertrophy.

Sapir O. Eight white rabbits of the same litter for his experiment. Under local anesthesia the right kidney was removed. The rabbits were then killed after intervals of from three days to eleven months after the operation. Three rabbits were used as controls. Serial sections were made of all the kidneys.

The glomeruli of kidneys of normal rabbits are larger in the cortex of the medulla than in the

peripheral portion of the cortex. In hypertrophic kidneys the majority of the glomeruli are enlarged and the difference in size between the glomeruli of the peripheral and central portions of the cortex appears greater. No signs of new formation of glomeruli or tubules in young rabbits were seen. The enlargement of the kidneys of rabbits in experimental hypertrophy is due in part to a hypertrophy of the glomeruli without an increase in the number of the glomeruli. No attempt was made to measure the tubules in hypertrophic kidneys.

The hypertrophy of a kidney which follows the ligation of the ureter of the other kidney was no greater than that in the unilaterally nephrectomized animal. During the first three weeks of hypertrophy the kidneys showed first a hyperemia of the capillaries and later on a marked cloudy swelling which probably reaches its maximum about three weeks after unilateral nephrectomy. Later the changes disappear and the hypertrophic kidneys show no degenerated change. Hypertrophic kidneys show no traces of fat.

WILLIAM J. CARSON, M.D.

Lower W. E. and Belcher G. W. Mass. Lipoma of the Kidney with the Report of a Case  
S. G. G. & Obst. 19 11

Massive lipoma of the kidney is very rare. The authors review the literature on the etiology and pathology of the condition and add a sixth case to the five that have been reported to date. Their case is the fourth in which the tumor was removed by nephrectomy.

As in all of the other reported cases the tumor in the authors' case developed in a woman of middle age. The characteristic features of the case were identical with those of a case reported by Warthin. In general the symptoms produced by the neoplasm are mild and similar to those caused by any other tumor of the kidney. In the authors' case the principal symptoms were apparently referable to the gastrointestinal tract. The pyelogram showed definitely a deformity of the kidney pelvis. Nephrectomy was followed by a ray therapy.

In the authors' opinion lipoma of the kidney is probably less malignant than has been generally supposed.

The article is supplemented by a bibliography and contains illustrations showing the gross and microscopic appearance of the specimen.

JOHN G. CHEETILAN, M.D.

## BLADDER URETHRA AND PENIS

Lundy J. S. Regional Anesthesia for Operations in the Urinary Bladder. J. U. 1927 11 55

Regional anesthesia is usually satisfactory for operations in the urinary bladder. An important factor in the success of sacral or abdominal block is attention to detail. From data presented it appears that complete posterior sacral block produces complete anesthesia that caudal block and

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

**Senque J.** The Results of Suprarenallectomy in Spontaneous Gangrene of the Extremities (Résultats de la surrenalectomie dans les gangrènes spontanées des membres) *J. et Méd. Fr.* 1927 xxxv 454

The author reviews Herzberg's statistics on 110 cases of suprarenallectomy (eight of them his own) and in his report collected by Leriche. In four of the cases reported by Herzberg the data were too meager to be of value. Senque's conclusions are therefore based on 11 operations.

Suprarenallectomy for spontaneous gangrene of the extremities was first proposed by Oppel in 1921 on the theory that the gangrene is due to spasm of the peripheral blood vessels due to hyperadrenalinemia caused by hyperfunction of the suprarenal glands. However, the occurrence of such an increase in the adrenal in the blood has never been proved and the condition has never been produced experimentally. Hypertrophy of the suprarenal glands is not common and when it occurs it affects usually the cortex and not the medulla which is the producer of the adrenalin.

The operation is always unilateral and is sometimes supplemented with other procedures. In eleven cases it was combined with peripheral sympathectomy, in six with ligation of the vein in one with transection of the testicle in two with transplantation of a corpus ovary in two with ligation of both splanchnic ducts in seven with section of nerves in one with the injection of salt solution into the sciatic nerve and in two with the injection of alcohol into the sciatic nerve.

Eighty-two of the patients were between the ages of 30 and 50 years. A cure—cessation of the pain and cicatrization of the ulcer—was obtained in four out of the 112 cases. Three patients were cured for two years, five for one and a half years, three for one year, two for six months and one for seventeen days. One is a more recent case.

The author points out that the disease is slowly progressive and that temporary relief may be obtained by numerous procedures. He regards a case as cured only when the cure lasts at least two years. Herzberg has reported a case in which a recurrence developed after two years.

Of the nineteen deaths in the cases reviewed fifteen were attributable to the operation but some of the patients showed no doubt not have survived a simple amputation. Two deaths were attributed to suprarenal insufficiency.

In Russia where the operation has been performed most frequently the number of reported cases has fallen from forty for in 1923 to one in

1926. From this fact it must be concluded that it has been found not clinically justified.

MICHAEL L. MASO M.D.

**Coln T.** Distention of the Renal Pelvis. Roentgenography (De A. H. L. van der Velden as fuer d. a. Roentgenbild) *Str. T. f. d. deutsch. G. f. Ch. Berl.* 1927

The author showed a series of roentgenograms of renal pelvis inflated with air and summarized the indications and contra-indications for filling the pelvis with solutions and with air.

Filling with umbrenal sodium iodide and sodium bromide solutions gave the most distinct pictures of the excretory urinary passages. This is to be considered when a very accurate pre-examination of the outline is desired in most cases of renal tumors and cystic kidney and when dilatation of the lower half of the ureter is necessary. The use of solution is to be avoided in all cases in which chemical irritation of the mucous membrane may be injurious as in case of marked ptosis of the kidney suppuration and dilatations. In such cases air should be used instead.

Filling the kidney pelvis with warm aseptic air is the simplest and cheapest procedure. In case of obstruction to the outflow and for filling of the entire pelvis into the renal tissue by catheterization of the ureter no toxic chemical effect will be produced. This procedure was used by the author 30 times in the cases of 12 patients without producing any serious injury or an sequelae suggesting embolism. By a proper selection of cases a knowledge of the anatomical and roentgenological facts and delicate and accurate technique it is rendered harmless. It is a valuable and in many cases an indispensable supplement to other methods of examination in urological surgery. The position of the renal pelvis and the nature of torsion can be seen and to even small urate stones—are visible on the roentgen plate.

STETTIN (Z)

**Mathé C. P. and Oledo G. F.** Spontaneous Rupture of Hydronephrotic Sac Secondary to Uteral Stone. *C. f. for* — *N. J. M. J.* 1927 xx 790

The author claims that although traumatic rupture of the kidney is fairly common spontaneous rupture of that organ is much less infrequent. The latter usually occurs in kidneys presenting tumor, abscess, ematoma, tube coliculus or chronic nephritis.

In the case reported in this article a rupture occurred in a hydronephrotic case secondary to back pressure caused by a stone. At operation a curved linear lumbar incision was made in the right side



the skin was closed without drainage. The catheter was then withdrawn from the external meatus and the suprapubic catheter replaced by a siphon.

After the operation the bladder was irrigated daily until spontaneous urination occurred when the siphon was removed. This occurred on the twentieth, twelfth, eighth and tenth day respectively. The suprapubic wound had closed and healed on the twenty-sixth, twentieth, twenty-second and twenty-second day respectively. The stitches were removed between the eighth and eleventh days. Healing took place by primary intention in all instances. The urethra was explored with a sound some time between the twentieth and fortieth postoperative day.

The patients received no treatment after they left the hospital. In Case 1 a No. 54 sound was passed easily one and a half months after the operation. Five months later urethroscopy with a No. 54 Luv urethroscope revealed a small area of edema and some irregularity of the urethra. Two years later the urethroscope was again passed and a small scar was seen. Four years after the operation a No. 54 sound was passed easily.

In Case 2 a No. 54 sound was passed on the forty-first day. Sixteen months after the operation a urethroscopic examination revealed some blanching and irregularity. There were no complaints.

In Case 3 a No. 54 sound was passed two months and twenty-two days after the operation. Ten months after the operation there were no urinary difficulties. The urethroscope revealed a slight area of paleness near the bulb which ordinarily would have been overlooked. Eighteen months later there were no signs of stricture.

In Case 4 the postoperative course was equally good. On the thirty-sixth day the patient was back at work and able to urinate freely and spontaneously. When he was examined a year later a No. 54 sound was passed. On urethroscopic examination some widening of the urethra and paleness of the mucosa over a distance of 1 cm. were seen.

Gimault attributes his results to careful suture of the distal ends of the urethra with minimal cutting away of the mucosa. He believes however that the perirethral tissues should be widely removed as they have little resistance to bacterial invasion. The skin should be closed tight without drainage. The operation is to be regarded as one of extreme urgency and should be done as soon as the diagnosis is made. MICHAEL L. V. SOY, M.D.

Hirsch E. W. Comparative Histology of the Urethral Mucosa and Its Relation to Gonococcal Infection. *J. Urol.* 1917, 575.

Hirsch reports the results of a comparative histological study made of a number of groups of mammalian urethra in an effort to determine why these strictures are resistant to artificial inoculation with the gonococcus. The findings are as follows:

Submucous urethral glands (glands of Littre) are not found in mammals.

Urethral glands are well developed in the lower classes of mammals (rats and guinea pigs). In the higher orders of mammals they are either absent or poorly developed. In man they are well developed and have a definite structure.

Urethral glands are developed in the lower classes of mammals in which the prostate and seminal vesicle are absent. Apparently therefore they serve a fertilizing function in these classes.

The mammalian urethral mucosa generally consists of squamous epithelium. Transitional epithelium and stratified columnar epithelium are found less frequently. Simple columnar epithelium is found only in the monkey. Since squamous epithelium in man is resistant to gonococcal infection it might be reasoned that mammalian urethra are protected against gonococcal inoculation because the lining of many mammalian urethra consists of squamous epithelium. This however does not explain the resistance of rats, guinea pigs, and monkeys whose urethra are lined with columnar epithelium.

Attempts by many workers (DeChiriac, Scholtz, Culver, Herrold and others) to infect the urethra of laboratory animals with gonococci have resulted in failure.

Mammals undoubtedly have a natural immunity to gonococcus infection of the urethra. The gonococcus is a highly specialized organism which attacks a highly specialized structure.

CLAUDE D. HOLMES, M.D.

## GENITAL ORGANS

Charlton A. A. Observations on Prostatic Cancer with Metastases in Bone. *Glas. M. J.* 1917, 379.

Charlton reports in detail the gross and microscopic findings made at autopsy in a case of prostatic carcinoma with numerous metastases. This case and two others studied demonstrate that in prostatic carcinoma there is widespread involvement of the osseous system without the occurrence of visceral metastases.

The embolic and lymphatic extension of carcinoma are discussed. The author believes that in the case reported the lungs became involved through an embolic process and the systemic circulation then became infected by the passage of single cells through the pulmonary capillaries. The cancer cells settling down in the bony tissues which attracted them.

JOHN G. CANNON, M.D.

## MISCELLANEOUS

Marion C. Certain Basic Principles in the Diagnosis and Treatment of Urological Conditions. (*Quelques données de diagnostic et de traitement de la pathologie urologique*). *J. d'Urol.* 1917, 193.

Marion states that in the diagnosis of a urological condition much more weight should be given to

Injection into the second sacral foramen on each side produce slightly less complete anesthesia and that caudal block alone is more likely to fail to produce complete anesthesia than either of the two other methods.

Complete sacral and abdominal block gives satisfactory anesthesia for prostatectomy and in many cases will induce sufficient anesthesia for the radical surgical treatment of tumors or diverticula of the urinary bladder. In some of these cases however balance anesthesia is advantageous. The type of sacral block for cystoscopy depends upon the quality of the anesthesia to be produced some patients require more and some less. Cystostomy can be performed under abdominal block but usually some sacral anesthesia is required as well. The quality of the anesthesia is necessary will determine whether the injection should be simply caudal or include some of the first ramina. If untoward drug reactions could be controlled much more anesthesia could be induced safely.

No particular type of blood pressure seems associated with any particular postoperative complication. Very low blood pressure is a contraindication to spinal anesthesia and to the use of very large amounts of procain in regional block. On account of the restriction to small amounts of the anesthetic agent in cases of hypotension anesthesia may not always be complete when the blood pressure is low.

The pre-operative use of morphine is advisable for patients who are nervous or in pain. The need suits for morphine in the first twenty-four hours after operation is in direct proportion to the trauma of the operation and the patient's nervousness.

The number and variety of the postoperative complications following local anesthesia only should emphasize the fact that the patients are poor subjects and that there may not be a choice of anesthesia. Wherever practicable regional anesthesia is desirable for operations on the urinary bladder.

#### Wade H. The Treatment of Malignant Disease of the Urinary Bladder. *Proc. Roy. Soc. Med. Lond.* 1931; 24: 81.

The author believes that in the so-called carcinoma age seemingly benign growths of the urinary bladder should be treated in the same way as carcinoma. The best treatment for a growth localized in the summit of the bladder is partial cystectomy. For cases in which the growth is more extensive hemicycstectomy with excision of a portion of one ureter and reimplantation of the ureter into the bladder is suggested. When neither of these procedures can be considered Wade performs a so-called palliative cystectomy preceded by transplantation of the ureters to the skin surface. He considers this the best procedure in the majority of cases.

Of four patients operated upon by Wade for malignant disease of the bladder two are still alive and two lived five years after the operation.

MAURICE MELTZER, M.D.

#### De Gironcoli F. Regeneration of the Bladder After Subtotal Resection for Carcinoma. *Riv. Gen. Raz. e d. Illa. e. Cica. d. Po. e. Port. e. S. It.* 1931; 1: 10.

Only eight cases of regeneration of the bladder after extirpation have been reported in the literature. The author adds a ninth. The patient was a workman of 63 years who entered the hospital with the symptoms of carcinoma of the bladder. He had also a skin ulcer on the right side of his nose. A subtotal resection of the bladder was performed, only the trigone being left. Five months later the ulcer on the nose was resected. Microscopic examination of both specimens showed cancer. Eight months after the operation the patient was presented before the Venice Medical Society as cured. Two months later he died of gangrene of the leg.

Autopsy showed a newly formed bladder, a small reservoir holding about 30 c.c.m. which had been formed around the trigone. Its cavity was lined with mucous membrane that was apparently normal. Its walls were very thick and the external layers looked like scar tissue. Histological examination showed a normal mucosa and submucosa with a thin layer of smooth muscle fibers interspersed here and there by connective tissue and foci of small-cell infiltration. *Abstract by G. Morgan, M.D.*

#### Carmalt L. and Chassau M. Fo. Cases of Traumatic Rupture of the Urethra Treated by Urethrorrhaphy and Suprapubic Drainage. Complete Cure Verified by Urethrocystoscopy. *Ann. Chir. (Paris)* 1931; 1: 10.

This article reports four cases of traumatic rupture of the urethra which were successfully operated upon by the same technique and followed for a sufficient length of time to justify an opinion as to the outcome. The end result was determined by urethroscopic examination by Grandjean. The operation was performed six, fourteen, three, and ten hours respectively after the injury. In two cases the urethra had been completely divided in one case the ends were still united by two thin threads and in one case about one-fourth of the circumference remained intact.

At operation a median suprapubic incision was made to open up and drain the bladder and for retrograde catheterization of the urethra. The patient was then placed in the lithotomy position. The urethra catheterized from the external meatus. The perineum incised and an exploration made to locate the injured ends of the urethra. A wide and thorough removal of all bruised perineal tissue was then done but the urethra itself was trimmed a little as possible. The two ends of the urethra were sutured with No. 00 chromic catgut. The cavernous tissue and the muscle were sutured separately, and

As surgical renal tuberculo is of the kidney is primarily unilateral and as spontaneous cure is unknown the correct treatment is early nephrectomy. Nephrectomy is contra indicated (1) when the function of the opposite kidney is defective (2) in advanced bilateral tuberculo is (3) in slightly bilateral tuberculo is and (4) when the disease is secondary to pulmonary and other gross tuberculous lesions.

If the ureter appears healthy it may be ligated in two places injected with phenol and divided a few inches below the kidney. Or the ureter and kidney may be removed at the same time through a lumbar and an incision. The operative mortality is about 2 per cent. A cure results in 60 per cent of the cases. In 40 per cent the urinary symptoms persist. Thirty per cent of the patients die within from three to five years from a recurrence in the other kidney or elsewhere in the body. Ten per cent will have either frequency alone or frequency and pyuria.

Tuberculosis of the bladder is probably always secondary to renal tuberculo is, genital tuberculo is or tuberculous salpingitis. Ulceration and tubercle formation occur with thickening and contraction of the bladder wall great pain and incontinence. The treatment indicated is the removal of the primary focus supplemented by general supportive measures. Local treatment usually of little value but fulguration through a cystoscope relieves the pain of the ulcers and perhaps assists healing.

Genital tuberculo is usually occurs between the ages of 20 and 4 years. The infection may be primarily haemic or may be secondary to urinary tuberculo is. The primary focus is generally in the prostate or seminal vesicles. In more than 80 per cent of the cases it is in the vesicles. In such cases the onset is insidious the progress slow and the prognosis poor. In advanced cases medical and general treatment is indicated but when the epididymis and testicles are involved radical operation is necessary.

C. D. H. L. M. V. D.

Stockman R. The Act on of Urinary Antiseptics.  
Ed. b. g. M. J. 9. 304

The time that freshly passed urine exists as ammoniacal decomposition has no definite value as an indicator of the potency of urinary antiseptics. The onset of decomposition depends upon the time at which and the extent to which the urine becomes contaminated with urea splitting organisms.

Acid sodium phosphate has long been used to acidify the urine. It is known that the cocci grow poorly in acid urine but when erythrogenic acids are present in a large part excreted in the faeces. For perfect functioning the body cells must be kept bathed in a faintly alkaline medium. The kidneys play an important part in keeping this balance by changing the weak alkaline mixture of phosphate in the blood to the acid mixture of phosphate in the urine. As a rule more molecules of the acid sodium phosphate is excreted as such and raises the acidity of the urine.

Chemically acid sodium phosphate provides an acid salt which neutralizes the excess of alkali and prevents the deposit of earthy phosphates and the formation of calculi. The urine reaction is tested by litmus. It is well to give acid sodium phosphate with hexamine because the latter has no action in alkaline urine.

Mineral acids are excreted in the urine as neutral salts and do not increase acidity. The common vegetable acids such as citric, acetic and tartaric acid are oxidized in the body and excreted as alkaline carbonates which alkalinize the urine.

Benzoic acids and benzoates are capable of acidifying the urine because they are synthesized in the kidney into hippuric acid which takes up alkali and is excreted as hippurate. The benzoates exert a very slight bactericidal effect but increase the acidity by taking up the alkali. The best salt is ammonium benzoate.

Benzoic acid and benzoates act chiefly when the urine is septic and ammoniacal. They render the urine acid, inhibit bacterial growth and prevent precipitation of earthy phosphates. Benzoates are of little value in bacillus coli, typhoid, tuberculous or gonorrhoeal infection or in pyelitis.

Salicylic acid and salicylates act like benzoates taking up alkali and thus increasing the acidity of the urine, but they are never found free in the urine. They have little restraining influence on bacterial growth.

Salol in the urine has a negligible antiseptic power. Boric acid is a weak acid and a feeble antiseptic but of great chemical value. It exerts its action in both acid and alkaline urine.

The urine may be alkalinized safely and effectively by the use of sodium bicarbonate with citrates. When it is acid 10 gr of boric acid, 20 gr of sodium benzoate and 10 gr of hexamine in 1 oz of water make the most powerful antiseptic known to the author.

Hexamine decomposes with the liberation of formaldehyde only in acid urine and never in a greater proportion than 1:5000. Pus and mucus fix the formaldehyde and lessen the proportion. A 1:5000 solution of formaldehyde is very inhibitory to the growth of bacillus coli, staphylococci and streptococci. Hexamine should be given in doses of 10 to 15 gr three or four times a day and the urine kept acid. It is of limited value in pyelitis. It sometimes causes irritation of the bladder but this is readily relieved by sodium bicarbonate.

Hexylresorcinol is highly bactericidal in vitro but in vivo is detoxicated by conjugation and rendered inert except for a small quantity which escapes. Sodium bicarbonate deprives it of its bactericidal powers by changing the surface tension. However it reduces the organisms and relieves the symptoms promptly though it fails to eradicate the infection.

Methylene blue reduces the organisms, pus and symptoms markedly but does not overcome the infection. Acriflavine inhibits bacterial growth and is more active in an alkaline than an acid medium.

physical signs such as pyuria or haematuria than to functional symptoms such as pain polyuria etc

When the catheter is arrested in the region of the bulb (where it may be felt in the perineum) a large bougie rather than a smaller bougie or catheter should be tried

Haematuria in the presence of hypertrophy of the prostate should not be attributed to the prostatic condition until all other causes have been ruled out by thorough examination

In chronic retention due to prostatic hypertrophy cystostomy and exploration are indicated. A bougie may be passed to the bulbar region if it passes. Stricture is ruled out

All cases of spontaneous cystitis all cases of cystitis resist the classical treatment for the condition and all cases of recurrent cystitis should be looked upon as possible cases of tuberculous infection

All cystitis except that due to gonorrhoea is an indication for cystoscopy especially if it resists treatment thought to be sufficient

Creteral catheterization should always be preceded by a complete examination of the bladder

In all cases of haematuria an immediate examination of the urinary tract should be made

In every case of renal pyuria which has not been shown to be tuberculous an X-ray examination should be made

An X-ray examination for renal stone known or suspected should include all of the urinary tract

Vaccin are often useful to hide the ignorance of the physician who is unable to establish the diagnosis

Nitch C A R Urogenital Tuberculosis B I U / J 19 1 503

Urogenital tubercle was formerly regarded as a hopeless case but within recent years exhaustive research and active surgical treatment have combined to give persons with this condition a good prospect of complete recovery

Tubercle bacilli reach the kidney from some other focus in the body present or active. Renal tuberculosis may be either surgical or medical. Acute or chronic renal tubercle is usually unilateral but may early become bilateral. The urine contains tubercle bacilli pus cells calcium oxalate fragments of renal tissue and small amounts of albumin of pyogenic origin. The medical form of renal tuberculosis is bilateral. The renal parenchyma is studded with milky tubercle. The urine which is clear contains few bacilli many hyaline granules and a large amount of albumin. The infection produces a typical chronic nephritis and stenosis in the ureters

Tubercle bacilli reach the kidney by way of the blood stream or the lymphatic system. The former is the more common route. Infection from the kidney to the other may occur by the passage of the bacilli through the lymphatic system. Ascending infection of the

kidney occurs by way of the per ureteral lymphatics or a damaged ureteral mucosa. Three types of this disease are recognized—primary closed parenchymatous tuberculous nephritis primary open tuberculous pyelonephritis and a combination of these two conditions

In primary closed tuberculous parenchymatous nephritis there are encapsulated foci in the parenchyma which go on to caseation abscess formation and ultimate destruction of the entire kidney. This change is accompanied by interstitial inflammation of the pelvis and calyces which ends in the formation of fibrous fatty tissue. The urine of the infected kidney is soon increased in amount its specific gravity is lowered and it shows a trace of albumin and pus cells. It is sterile and seldom contains tubercle bacilli. The function of the infected kidney is defective as compared with that of the other kidney. Complaint is made of a mild cystitis and this is often treated locally

Primary open tuberculous pyelonephritis is characterized by ulceration of the entire kidney. The changes spread down the ureter. The ureteral walls become thickened and the mucosa ulcerated. The symptoms include painful frequency pyuria and often haematuria. The efflux may resemble tooth paste coming from a collapsible tube

The condition which is a combination of primary closed parenchymatous tuberculous nephritis and primary open tuberculous pyelonephritis has clinical features similar to those of the latter

The clinical signs of chronic renal tuberculosis seldom indicate the extent of the lesion. There is usually no enlargement of the kidney but enlargement and thickening of the ureter are revealed on bimanual palpation (rectal in the male and vaginal in the female). Cystoscopic examination may show the bladder to be inflamed or ulcerated. The trigone alone to be involved. The ureteral orifice may present the only evidence of the disease. It may be congested and surrounded by bulk or may have tubercle on its margin. In long standing cases it may be wide open rigid and ulcerated

The symptoms are essentially those of cystitis. They usually begin gradually and increase steadily but sometimes are sudden in their onset. There may be remissions of symptoms for months or years during which time the patient appears to be improving. The kidney is seldom painful but the passage of debris down the ureter may cause ureteral colic. The frequency is due at first to a trigonitis and later to a cystitis. Nocturia is the most constant and important sign of the disease. The only positive result of the examination is the presence of tubercle bacilli in the urine

Bladder irritation is a frequent symptom and pyuria in the case of a person between 20 and 40 years of age are strongly suggestive of renal tuberculosis. The positive diagnosis is made by finding the tubercle bacilli; the negative diagnosis cannot be made unless a pyogenic infection is also made by diagnosis certain

# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS ETC

Janik A Tumors of Tendon Sheaths *Ann S* 1927 lxxv 897

Janik reports five cases of tendon sheath tumors. Two of the tumors were chondromata, one was a fibrochondromyxoid teosarcoma, one a haemangiofibroma and one a fibrosarcomatodes.

Both of the chondromata were the size of a hen's egg. One had its origin in the sheath of the flexor pollicis longus tendon and had been present for a year. The other arose from the flexor tendon sheath of the right second toe and was of three years duration.

The fibrochondromyxoid osteosarcoma which measured 18 by 12 by 15 cm. had grown from the sheath of the flexor carpi radialis and become attached to the tendon. It developed following an injury sustained fifteen years previously.

The haemangiofibroma grew from the tendon sheath of the flexor digitorum sublimis and was of five years duration. It was definitely a neoplasm and not an organized hematoma.

The fibrosarcomatodes developed from the flexor tendon sheath of the left index finger and was the size of a walnut.

The author suggests the following classification of tendon and tendon sheath tumors:

### A Neoplasms

- 1 Neoplasms of tendons (a) benign—fibroma, osteoma, chondroma (b) malignant—sarcoma
- 2 Neoplasms of tendon sheaths (a) benign—fibroma, lipoma, chondroma, angoma (b) malignant—sarcoma (c) mixed

### B Inflammatory and other tumors: tendovaginitis, tuberculous granuloma (the former myeloma), ganglion etc.

MICHAEL L. MASON, M.D.

Mumford E. B. The Origin of Rice Bodies in Bursal Sacs. *J Bone & Jt S* 1927 lx 38

The author reports three cases of rice bodies occurring in chronic bursitis to show the different conditions in which these bodies may be found and to present a theory as to their origin in tuberculous lesions.

Foreign bodies have been frequently found in synovial cavities. When they have been numerous and living free in the fluid they have been termed rice bodies. In the bursal sacs they may be found when a chronic bursitis with its excessive fluid has been caused by low grade pyogenic infection by trauma or by tuberculosis. In all instances however their formation is dependent upon the

presence of some small nucleus upon which may be deposited fibrin from the bursal fluid.

The physical character of the rice body depends upon the time that has been consumed in its formation, the origin of the nucleus and the character of the fluid in which it is found. The nucleus may have its origin in the bursal fluid or in the bursal wall. Nuclei which begin in the fluid are small masses of fibrin which grow by the further deposit of fibrin. They are found as a rule in a fluid containing blood and when seen early are small soft flat reddish masses with a dull luster. In cases of longer standing they may become firmer and assume an oval or round shape. They do not attain a high polish. On microscopic study this type of rice body will show only fibrin with but little lamination but may have enmeshed broken down blood cells.

Nuclei originating in a sac wall which has become thickened by a chronic inflammatory process due to pyogenic infection or trauma consist of small tags of fibrin which may have acquired from the underlying wall tissue those cellular elements which later will lead to the organization of fibrin. After a tag of thickened wall has been cut free the new fibrin which is deposited from the fluid may thus become organized giving rise to a rice body of firm consistency which may retain its round form.

Attention is directed especially to the origin and formation of rice bodies in tuberculous lesions. The nucleus in this type has been attributed to the liberation of proliferative tags of the thickened sac wall. Study of the sac wall gives also another conception of the origin of the nucleus. The sac wall consists of a tissue typical of the reaction of the tubercle bacillus consisting of irregular bands of fibrous tissue holding numerous giant cells. The giant cells in the deeper portion of the sac wall have numerous nuclei which are arranged in a concentric manner with a signet ring formation. As the giant cells approach the free or inner wall of the sac the nuclei become fewer and lose their typical formation. At the very edge of the wall several giant cells are found which do not contain any nuclei but consist of only a mass of fibrous tissue. Mumford believes that these giant cells are pushed from the lower strata of the sac wall losing their nuclei as they approach the free surface to be liberated later and form the nucleus of a rice body.

The life history of the fully grown rice body is that of the rice body found in other types of chronic bursitis. Fibrin from the clear or straw-colored fluid is deposited in layers upon the giant-cell nucleus giving the laminated structure seen on microscopic study. Through constant rubbing against each other the rice bodies become round or oval according to the shape of the giant-cell nucleus and may develop

Copals in oil and resin and sandal oil do not inhibit bacterial growth in the test tube but in the body they seem to have a peculiar selective action on the gonococcus. **JEREMY I. ROLLER MD**

**Leonard V. and Felsner W. A.: The Bactericidal Activity of Hexylresorcinol in Glycerine With Special Reference to the Influence of Surface Tension in Chemical Disinfection. F H Jek: Hpts 110 p Balt 1927 2h 21**

Chemical disinfection is a chemical reaction between the cell protoplasm and the disinfecting agent. The rapidity of such disinfection is influenced by concentration temperature pressure and time. The germicide must penetrate into minute crevices and interstices and then into the cell membrane. Fluids of low surface tension do this most efficiently.

Hexylresorcinol in therapeutic doses markedly reduces the surface tension of the urine and imparts to the urine active bactericidal properties. If the drug is administered with quantities of water or with diuretics such as sodium bicarbonate citrates etc the surface tension rises and the urine is robbed of its bactericidal properties. This rise in the surface tension is due to the resulting diuresis. Unless diuresis is prevented in the use of hexylresorcinol its effect will be disappointing. The success of hexylresorcinol in disinfecting the urinary tract depends upon surface tension since by the lowering of surface tension both osmosis and diffusion are accelerated.

Hexylresorcinol is the most powerful phenolic germicide yet discovered and is relatively non-toxic. The best solvent is a 30 per cent solution of glycerine and water.

The addition of water to glycerine raises the surface tension but if hexylresorcinol is present in the glycerine the addition of water reduces the surface tension and increases the bactericidal action of the

solution. It was found that 10 per cent of water in the 1:1000 solution of hexylresorcinol in glycerine depressed the surface tension 35 dynes per cubic centimeter and enabled the germicide to destroy *Bacillus typhosus* in fifteen seconds. The least irritating concentration which will destroy the test organisms in fifteen seconds is a 1:1000 solution of hexylresorcinol in aqueous glycerine.

Aqueous solutions of hexylresorcinol suffer no deterioration of bactericidal activity even after many months at room temperature.

The best solution for tissue surface disinfection consists of 30 per cent glycerine and 0 per cent water in which is dissolved 1 mgm of hexylresorcinol per cubic centimeter.

**BE JAMI F ROLLER MD**

**Horner Sir T.: The Medical Aspects of Hematuria. Proc Roy Soc Med Lond 1927 20, 129a.**

Of the cases upon which this report is based twenty were cases of acute nephritis. In this condition there is some toxic factor due to infection of the tonsils by the coccal group of bacteria or infection by the bacillus coli. In seven of the cases there was chronic nephritis. In four cases the hematuria was associated with infective endocarditis. In this condition there is usually no pain the bleeding is prolonged and a septic embolus is found in the kidney. In four cases there were renal calculi which produced no symptoms. In three cases there was infection of the urinary tract. In two cases the hematuria was associated with mitral stenosis with an infarct in the kidney. In two cases it was associated with purpura due to the same toxic agent. In five cases the diagnosis of essential hematuria was made. In one case the hematuria followed the administration of urotropin and in another was associated with polycythemia.

**MAURICE MELTZER MD**

uterine life. It was once confused with rickets, but has been recognized as a separate entity since 1860.

At birth the typical achondroplastic has a body of normal size, exceedingly short limbs and a large head with a very characteristic depression at the root of the nose. The limbs are curved because of angular placement of the segments of the knee joint and the head of the fibula is on a level with the head of the tibia. The proximal segment of the extremities is proportionately shorter than the distal segment. The fingers are of equal length and diverge.

The head is rounded and there is an increase in its transverse diameter. The entire nasal region may be flattened and the upper jaw pushed forward. Apparent lordosis is commonly present and may be combined with kyphosis. It is probably due to displacement of the femora posteriorly on the generally contracted and deformed pelvis rather than to actual spinal curvature.

Intelligence may be normal or reduced. Sexual development and muscle power are usually good. The condition shows a hereditary tendency but is frequently sporadic.

The long bones show large rounded epiphyses connected by very short and thick diaphyses. There may be bends and angles near the epiphyses. The portions of the skull which are developed in cartilage are abnormally small and there are compensatory alterations in the shape of the brain. The ribs may be short and show furrows or bending at the osteochondral junction.

Histologically the condition is characterized by greatly diminished proliferation of cartilage cells. At the epiphyses ossification proceeds through an intermediate stage of calcification of cartilage or by metaplasia of fibrous tissue which has arisen from cartilage or the perosteum. The formation of bone from perosteum takes place in the normal way and is usually active.

The condition begins in the uterus not earlier than the second month of gestation and probably persists as long as growth continues. Jaundices and theories that the changes are brought about by an increase in the amniotic pressure leading to chlamydia in the embryo. It is believed that congenitally however that an abnormality of internal secretion is an etiological factor.

The article contains several illustrations.

W. I. B. & T. M. D.

Berkhardt Attempt to Influence the Regeneration of Bone by Chemical Means. (1925) H. Beebe, J. H. Knapp, E. G. T. G. D. D. A. C. C. H. B. I. Q.

The author states that in a number of rabbits it has been shown that the effect of the generation of the substance applied to the site of fracture in the lower limb of the rabbit is that the growth of the regenerate bone is increased in the area of the fracture. The author also states that the effect of the application of the substance to the site of fracture is that the growth of the regenerate bone is increased in the area of the fracture. The author also states that the effect of the application of the substance to the site of fracture is that the growth of the regenerate bone is increased in the area of the fracture.

are based on the theory that regeneration may be induced or controlled by regeneration hormones that are hypothetical degeneration products of the tissues. The original substance used was the bone marrow of animals of the same kind. After the animal was killed the substance was applied sometimes in its natural form and sometimes in the form of an extract.

The experimental animal showed a certain increase in callus formation as compared with the controls but this increase was not sufficient to exclude error. The interpretation of the findings was difficult because in spite of the great care taken to make the resection exactly the same in every instance the course of regeneration showed considerable variation. On the other hand the injection of an antitonic solution was followed by a distinct reaction in the sense of increased callus formation. This occurred with the use of a hypertonic sodium chloride solution but not with the use of distilled water.

In the discussion of this paper SCHUBERT reported upon some experimental studies on growth. With Bahl he carried out experiments with regard to the effect of pressure on the longitudinal growth of young bones. It was found that the differences in length noted in the various parts of the extremities could not be explained by the influence of pressure. They depended upon epiphyseal stimulation from the site of injury (amputation resection) which incited the epiphyseal zones to increase or diminish their activity according to their intensity and the distance of the site of injury from the principal zone of growth.

ST. TITNER (Z.)

Falbank H. A. T. Some General Disease of the Skeleton. B. J. S. G. 927.

The normal development of bone requires a proper cartilaginous or membranous scaffold the deposit of inorganic salts and a sufficient number of bone forming cells.

Osteogenesis imperfecta is of four types. One type is characterized by multiple fractures abundant callus and short thick bones. In another the bones are slender and poorly calcified and the cortex is abnormally thin. A third type is characterized by honeycombed bones and a fourth by marble bones which are dense and show obliteration of the medullary canal.

Dischondroplasia is characterized by distorting of the affected limbs and irregular ossification at the ends of the diaphyses of the long bones. In some cases there is mottling of the epiphyses.

Achondroplasia has been attributed to temporary abnormal amniotic pressure in early fetal life but this theory has not been proved. The ossific nucleus appears close to the end of the shaft of the bone.

The end of the shaft is usually funnel shaped. The epiphyses are of normal size.

In craniochondroplasia there may be in addition to the usual abnormalities failure of ossification of the pubis and carpal bones the presence of

facets or impressions upon their highly polished surfaces. The continuous liberation of giant cells from the sac wall accounts for the large number of rice bodies found a number limited only by the size of the sac. According to this theory the rice body originates not as a pinched off tag of proliferated sac wall or fibrous deposit but as a giant cell extruded from the deeper layers of the sac wall.

NORMAN C. BULLOCK, M.D.

Stellwagen T. C. and McCahey J. F. Gonorrheal Arthritis in the Adult Male. Correlation of Clinical and Urological Findings. Treatment by Injection of the Seminal Vesicles. *J. Urol.* 1917, 11, 1.

Stellwagen and McCahey discuss the treatment of gonorrheal arthritis by the injection of 1 cc of 1% solution into the seminal vesicles through the rectal mucosa. They report fourteen cases which were treated satisfactorily in this manner during the past two years at the Jefferson Hospital, Philadelphia.

After a copious enema and rectal washing the patient is placed in the knee chest position and a special needle fitted to a syringe by rubber tubing is inserted into the vesicle under the guidance of the finger. Care is taken not to plunge the needle too deeply. Not more than 3 cc of 1% solution is then injected into each vesicle.

The treatment is indicated particularly in the acute or subacute types of gonorrheal arthritis. It is given as soon as the diagnosis of the focus in the vesicles is established. After the injections are discontinued it is necessary to resort to massage to return the vesicles of lubrication and to favor their return to normal. In cases of chronic gonorrheal arthritis the injections are no more effective than massage but may be helpful in relieving the symptoms.

The authors report several untoward results in their fourteen cases. In one case the injections were followed by a rise in the temperature in spite of involvement of previously apparently normal joints and in two by erythema.

PALL C. COON, M.D.

Ellenbury C. F. A Second Report on a Child with Undescribed Dystrophy Probably of Luetic Origin Affecting Particularly the Joints of the Lower Extremities. *J. B. C. J.* 1917, 9, 7, 15.

The first report on the dystrophy discussed in this article was made in 1914. This article is a brief sketch of the changes that have taken place since the first report. The important points brought out in the original report are the following:

The disease a familial affection three of a family of seven children.

The father and mother were living and well and the history of the grandparents as negative.

Both the blood and the spinal fluid Wassermann tests of the parents and the children were negative.

The reflexes of all of the children were normal and equal.

There were no areas of anesthesia parasthesia or dislocation of pain and temperature sense.

In every case the mouth and tongue presented a roughened fissured scarred appearance but the teeth were negative.

In all three cases the trouble in the knees dated back to what was apparently an acute arthritis following an injury.

Lameness was a marked initial symptom in two cases but not so marked in the third.

Pain was not present to any extent in any one of the three patients at the time of examination in 1914 and was not present in 1917.

While the predominating findings were made in the knee other structures besides the knee were involved. G. D. aged 6 years had bowing and some irregular areas of atrophy in both tibiae. A. D. aged 16 years had an old healed pathological fracture of one fibula. R. D. had enormous thickening of the lower portion of one tibia atrophy of the lower portion of one fibula and changes in the os calcis and astragalus.

The author submitted his original paper and all roentgenograms taken since 1914 to Baetjer of Baltimore and received the following reply:

The condition is unquestionably a neuropathic lesion. I have never seen a case of Charcot joint in congenital lues but notwithstanding this and a similar report from Johns Hopkins I can if the Wassermann continues to be negative I would still be forced to characterize them as Charcot joints.

Of three Wassermann tests made in 1917 two were positive. A. D. the patient who is by far the most afflicted has a negative reaction.

In conclusion the author says that he still regards the changes in these cases as due to congenital lues. In the case of A. D. aged 20 years the appearance of the knees is quite characteristic of the Charcot joint a condition that is not supposed to occur in congenital lues. The knees of R. D. aged 32 years are also strongly suggestive of Charcot joint and certainly of a dystrophy of some kind. G. D. 10 years of age has a positive Wassermann reaction but has improved with treatment and at present complains of no disability although the right knee shows some variation from the normal.

The data of a birth history in dystrophy probably due to lues is based on (1) the early history of the three children (2) the appearance of the tongue and lips (3) the pathological report (4) the wing biopsy on the knee (5) the Wassermann tests made in 1917 (6) the roentgenogram (7) the exclusion of tabes and syringomyelia and (8) failure to find in the literature the description of any similar condition occurring in congenital lues.

NORMAN C. BULLOCK, M.D.

Knag & R. L. Acclonodoplasia. *B. J. S. S.* 1917.

Acclonodoplasia is the consequence of a defect in the development of the process of the condylar head which is in evidence at a very early period of intra-



the fingers of the right hand were apparent. The muscles of the right upper arm were somewhat weaker than those of the left upper arm. Along the ulnar border of the right forearm sensation was defective for wool and pin prick. Movement of the neck was restricted in all directions. On the right side of the neck there was a noticeable protuberance which felt hard and bony.

Roentgenograms showed massive enlargement of the lower cervical spine. In the anteroposterior view there were two lateral curves: the upper one of which was concave to the right and the lower one concave to the left. The lateral view showed an increased lordotic bending about the middle of the cervical spine. Some of the intervertebral disks had apparently disappeared. The bodies, laminae and spinous processes of the lower cervical vertebrae exhibited a marked increase in density with apparent narrowing of the intervertebral foramina. Those in the lower part of the cervical spine could not be made out. Roentgenograms of the dorsal and lumbar spines showed no osteoarthritis.

H. EARLE CORWELL, M.D.

Rugh, J. T. Complications of Surgical Tuberculosis Especially of the Spinal Type. *Am. J. Surg.* 1917, 11, 568.

Rugh reviews the treatment of surgical tuberculosis in which complications have developed after treatment in general practice and in institutions for periods ranging from one to twelve years. He believes that in cases of cold abscess interference is indicated only when the abscess is increasing rapidly in size, when it is pointing and threatening to break, and when it is interfering with the general health. The only treatment of such abscesses is aspiration. They should not be incised, drained or washed out.

The material in tuberculous abscesses is infected only by the tubercle bacillus. These bacilli are seldom found in the pus, but when the pus is injected into guinea pigs it produces typical tuberculosis and no other infection. In cases of open sinus however mixed infection cannot be prevented.

All that is necessary in the treatment of a cold abscess is relief of the tension to prevent rupture. As soon as a tuberculous abscess is opened and drainage is begun mixed infection is almost certain to occur.

Under proper treatment with rest, absolute fixation, nourishing food, exposure to the sunlight and the administration of fats, surgical tuberculosis is one of the most curable of conditions.

When treatment with rest and absolute fixation is given, paralysis of clapping in spinal cases practically always disappears after the first attack. Functional as well as physiological rest of the parts is essential. Some orthopedists claim that weight bearing may be allowed because the weight is thrown on other parts, but Rugh states that he has seen many cases in which weight bearing after fixation was followed by abscess formation and the breaking down of tissue. Surgical fixation by bone graft or

osteoplastic operation is of great value in these cases.  
H. EARLE CORWELL, M.D.

Albee, F. H. Spondylolisthesis. *Bone & Joint Surg.* 1927, 11, 427.

Albee reviews the literature on spondylolisthesis and discusses the pathology, etiology, types and diagnosis of the condition. He states that it is not as uncommon as was formerly believed and occurs in males as often as in females. Trauma is the primary cause, but there may be predisposing congenital factors. The only satisfactory treatment is immobilization of the involved vertebrae by means of a bone inlay graft. In the eight cases in which the author used this method good results were obtained.

EILEEN J. BERNHEIMER, M.D.

Putti, V. New Conceptions in the Pathogenesis of Sciatic Pain. *Lancet* 1917, 9, 7, 1031, 53.

Sciatica has been recognized as a clinical entity only since it was described by Cotunio toward the end of the eighteenth century. It was long known as Cotunio's disease. Charcot was one of the first to draw attention to its frequent association with vertebral deformity, and Brissot first coined the term sciatic scoliosis to describe the lateral curvature due to sciatica.

Putti emphasizes the fact that from the clinical standpoint sciatica is to be considered merely a symptom. The terms essential sciatica and idiopathic sciatica he characterizes as meaningless. For the pain due to irritation of the nerve in the canal or foramen through which it passes he uses the term neurodicitis.

In the causation of sciatica, not only anomalies of the lumbar vertebrae such as lack of fusion of the spinous processes and an increased lumbosacral angle, but also anomalies of the intervertebral foramina and articular facets play a part. The abnormal articular facets may be unilateral or bilateral, may differ in size and may be on different planes. To detect such changes stereoscopic roentgenograms are essential. From a study of roentgenograms Putti has come to the conclusion that the principal cause of sciatic pain is what he calls an anomaly of the articular tropism, a change in the plane of the articulating facets, an arthritis or ankylosis of the intervertebral articulations.

The chief clinical manifestations of sciatica are pain and rigidity of the lumbar spine. The other signs and symptoms are important but cannot be regarded as pathognomonic.

For sciatica due to spinal arthritis Putti recommends active hyperemia and immobilization. He reports that his results with this treatment are good in the majority of cases.

In conclusion he states that sciatic pain is symptomatic of vertebral arthritis, except in those rare cases in which it is a symptom of a neuritis of specific nature. Sciatica is a neuralgia caused by pathological conditions of the intervertebral foramina and

epiphyses at both ends of several metacarpals and phalanges and coxa vara

The retardation of growth in professional dwarfs is known as ateleiosis

Myositis ossificans idiopathica is a congenital affection in which the proximal phalanges of the big toes or the thumbs may be suppressed and abnormal masses of bone may appear

The deformities of gigantism acromegaly osteomalacia and mixed types of dwarfism and infantilism may be attributed to endocrine disturbances The cause of fibrocystic disease leontiasis osteritis deformans and arachnoidactylia is unknown

The article is supplemented by roentgenograms of many of the deformities described

W P BLOUNT MD

Stoloff E G Bone Cavities—A Roentgenological Study *Am J Ro Ig n l* 19 7 21 4, 26

According to their etiology bone cavities may be divided into two main groups (1) hemorrhagic represented by expansive hemorrhagic bone cysts and (2) infectious represented chiefly by osteomyelitis and tuberculosis

The strict anatomical and pathological definition of bone cyst does not meet clinical requirements and there is no uniformity of opinion regarding the etiology of cystic disease The author reviews the literature on the pathogenesis etiology and nature of bone cysts He accepts the classification of Pommer and Looser because it is based upon physiology as well as pathology

With regard to solitary cysts and the osteitis fibrosa of Recklinghausen there is considerable difference of opinion Stoloff accepts the theory of Pommer and Looser that the osteitis fibrosa of Recklinghausen is not a disease entity but a syndrome expressive of trauma and perhaps of an inferiority of the vascular system In normal bone this syndrome is localized (a solitary cyst) and in diseased bone (osteomalacia osteoporosis osteitis deformans Paget) it is generalized The author refers to it as expansive hemorrhagic cysts (brown tumors)

In the solitary or localized form the roentgenological appearance suggests a soap bubble The multiple or generalized form has a honeycomb or sponge like appearance The cortex may be expanded to a spindle or ball form and is uniformly thinned In the solitary form the epiphyses and periosteum are not involved but in the multiple form these may be invaded In the juvenile skeleton both usually occur in the diaphyseal end of the long bones

Tuberculous cavities are characterized by smooth borders lack of shadow creating contents and invasion of the epiphysis Syphilis is characterized by ossifying periostitis and osteomyelitis by a dense zone of ossification around the cavity Central tumors usually show a definite sclerosis of the marginal zone and an arching of the bone surface with the formation of septa

Cystic disease of bone comes under observation as a result of trauma In youth it is the most common cause of pathological fractures It becomes painful only when fracture or laceration of the periosteum occurs In the multiple form symptoms of the underlying disease (malacia porosis) are also noted

CHARLES H HEACOCK, MD

Cone S M Bone In Hodgkin's Disease *J B & J I S* 8 927 1 458

The evidences of Hodgkin's disease in the bones as in the spleen liver and other organs are inconstant The principal change is a progressive tissue formation This is usually fibrous but in one of the cases studied by the author new bone was formed Coagulation necrosis simple edema and the presence of polymorphonuclear leucocytes indicate a more intense poisoning Greater involvement of the reticulo endothelial system and the presence of Dorothy Reed giant cells are specifically characteristic of Hodgkin's disease Eosinophilic cells are present in large numbers

ELLEN J BECKHEIMER MD

Schuere Waldhlm F Acute Rapidly Fatal Osteomyelitis (Ueber kut rasch m Tod f h r nde Osteomyelitis) *A ch f kl Ch r* 9 7 21 65

Osteomyelitis is to be regarded as a secondary disease The portals of entry are furuncles paranasal or the mucosa of the gastro intestinal tract The etiology are various forms of the condition the ordinary purulent type the sclerotic non purulent type non purulent osteitis aluminosa and the hemorrhagic septic type which runs a rapidly fatal course The author reports 15 cases of the last type 1 children between 2 and 14 years of age in which the condition was complicated by toxic exanthemata purulent arthritis thrombosis of large vessels and numerous pulmonary metastases All of the patients died within seventy two hours

Early diagnosis and early operation are the only life saving measures known The operation must be performed with minimal concussion of the bone

RIESS (Z)

Hendry A W and Fowler A Hypertrophic Osteo Arthritis of the Cervical Spine *Lancet* 9 7 ccc 1 81

The author reports the case of a man 21 years of age who sought treatment in the out-clinic of the Aberdeen Royal Infirmary for weakness of the right hand which he had noted for five years Two years ago he first realized that the right hand was smaller than the left At no time had there been pain in the hand At the age of 5 years the patient had had measles complicated by otitis media and the latter condition had become chronic

At examination all of the joints of the upper extremities moved freely but definite weakness and wasting of the intrinsic muscles of the right hand and of the flexors and extensors of the right wrist and

certain number. Indirect force may produce them by compression or traction, arrachement. In landing on the feet in a fall the weight of the body is transmitted from the condyles of the femur to the upper end of the tibia and the latter having less resistance is fractured. The internal tuberosity is usually the one fractured as it is nearer the axis of gravity of the body. Fractures by arrachement alone are rare unless the bones are pathological. To produce them experimentally direct violence must be added to the action of the ligaments.

The direction of the line of fracture is determined in general by the disposition of the trabeculae composing the spongy bone. When the entire tuberosity is detached the line of fracture usually begins near the tibial spine and runs downward and outward or inward to the level of the upper tibiofibular articulation. Partial fractures also occur. These consist simply of a fissure extending from the joint surface and disappearing in the diaphysis. Associated fractures of the fibula are relatively rare.

The displacement of the fragments always occurs downward and outward in relation to the axis of the bone. Because of the fibrous investment of the epiphysis the displacement is usually not great. Posterior subluxation occurs frequently and is associated with fracture of the internal tuberosity.

The symptoms include an early and often very extensive hæmarthrosis and marked infiltration of the soft parts. The ecchymosis is most marked in the popliteal region. When an ecchymosis here is associated with hæmarthrosis a fracture should always be suspected. The leg is usually in an atti-

tude of semiflexion. More important but less frequent is the varum or valgum deformity. A constant sign is widening of the upper end of the tibia.

The prognosis is always grave. If complete recovery of function of the joint occurs this result is obtained only after from eighteen months to two years.

The treatment of these fractures is either orthopedic or surgical. Orthopedic treatment consists in early and if necessary repeated evacuation of the hæmarthrosis, reduction of the fracture, immobilization in a posterior splint for a month and massage even during the period of immobilization. The puncture of the joint should be made with a knife in order to assure the evacuation of all clots.

Surgical treatment consists in reduction of the fracture by an appropriate arthrotomy and fixation of the fragments by nails, screws or bands. The extremity should be immobilized for only a short time and massage and movement should be begun early.

In the author's opinion orthopedic treatment is the treatment of choice. Open reduction often gives more brilliant immediate results but not uncommonly is followed by late accidents. In about a fourth of the cases so treated the material used for fixation is not tolerated and in the event of an infection the result is disastrous. Moreover exostoses or rarefactions often interfere with function. When orthopedic treatment is given the anatomical result is often imperfect but the eventual functional result is usually excellent.

ALBERT F. DE CROAT, M.D.

articulations For the terms *rheumatic sciatica* and *idiopathic sciatica* the more accurate terms *arthritic sciatica* or *vertebral sciatica* should be substituted  
I L L C CLONNARD MD

## SURGERY OF THE BONES JOINTS MUSCLES TENDONS ETC

Henry A K An Operation for Slings a Dropped Shoulder B J S 97 x 9

Henry reports a case of postoperative paralysis of the left sterno cleidomastoid and trapezius muscles in which the boulder drop was relieved by slinging the vertebral border of the scapula to the spines of the 11th cervical and third thoracic vertebrae by means of strips of fascia lata After fixation of the arm in full abduction for four weeks the patient was able to abduct completely with the aid of the serratus anterior  
W P BLOUNT MD

Major L Transplantation of the Trapezius for Paralysis of the Abductors of the Arm J B C J M S 97 x 415

Many attempts have been made to correct paralysis of the shoulder Hilderbrand shifted the clavicular portion of the pectoralis major over to the acromion by twisting the muscle so that its deep surface became superficial Lange attempted to replace the deltoid by threading the trapezius with numerous strands of silk and attaching them to the humerus at the deltoid insertion Lewis sewed the trapezius to the paralyzed deltoid Spitzzy combined the transplantation of the trapezius and the pectoralis major Stoffel and Spitzzy attempted various types of nerve implantation for regeneration of the paralyzed circumflex nerve

Despite these numerous attempts only one operation for paralysis of the abductors has been accepted as a standard procedure—arthrodesis of the shoulder This operation however gives only one half the normal range of motion at the shoulder and a result which is far from aesthetic The procedure described by Mayer in this article consists in detaching the trapezius from its bony insertion lengthening it by an artificial tendon of fascia lata and suturing this tendon to the humerus near the deltoid insertion To secure a satisfactory result the trapezius the serratus magnus and either the pectoralis major or the coracobrachialis or the biceps must be active

The bony attachment of the trapezius is outlined by the skin incision the skin is set up and the muscle cut free from its insertion A second incision is then made in the region of the insertion of the deltoid and the fibers of the deltoid are slit for exposure of the bone A bone flap 1 1/2 in long and 3/4 in wide is removed from the cortex of the humerus Half an inch lower a drill hole is made to facilitate the anchoring of the artificial tendon A portion of the acromion just posterior to the acromioclavicular junction is removed to permit the passage of a forceps between the acromion and the shoulder

joint downward beneath the fibers of the deltoid and out at its insertion A second part of the scapula is left in place to be used later in pulling down the fascial tendon

An assistant prepares from the fascia lata a graft 6 in long and 3 in wide with one end tapering The inner surface of the fascia is roughened to make it adhere to the fibers of the trapezius muscle The fascial transplant is attached to the trapezius muscle with interrupted sutures as far up as possible A No 3 chromic stitch is passed in a criss cross direction three or four times through the tendon and brought down to the deltoid insertion The arm is abducted to 120 degrees and the tendon firmly fastened to the bone The retracted periosteal margins are then brought together to cover the tendon the skin incisions are closed and the arm is fixed in abduction by a plaster cast

At the end of three weeks the arm is taken out of the cast and exercises are begun During the exercises the arm must not be brought lower than 90 degrees After six weeks very gentle massage and manipulation are begun to improve the range of motion

To date six cases have been operated upon in the manner described In one the procedure was a complete failure because the tendon tore away from the humerus In another the result was poor probably because the child was removed from the hospital too soon and the after treatment was imperfectly carried out In the four other cases however the results were gratifying

The operation described gives a more complete range of abduction and a better aesthetic result than arthrodesis but has the disadvantage of requiring at least three months of postoperative exercise  
NO MAN C BULLOCK MD

## FRACTURES AND DISLOCATIONS

Johansen R W Jr A Study of the Healing Process in Injuries to the Carpal Scaphoid J B C J M S 97 x 431

In fractures of the carpal scaphoid the fragments have a sufficient blood supply There is no periosteal callus The cartilaginous surface heals by fibrous tissue formation The medullary response is more active in the long bone than in the cancellous bone of the scaphoid No evidence of a lytic effect of the joint fluid on bone repair is apparent  
F L TAYLOR JR REHELM MD

Barbican N Fracture of the Tibial Tuberosities (Fracture of the Tibial Tuberosities) J J M S 97 x 663

Articular fractures of the upper end of the tibia are relatively infrequent They occur most commonly after the fortieth year of age when the resistance of the bones begins to decrease

These fractures may be produced by direct or indirect force Direct traumatism such as the kick of a horse and crushing under a vehicle account for a

arteriovenous aneurisms the absence of clots tends to eliminate this accident

Two methods of treatment presented themselves to Picard (1) quadruple ligation of the vessels with extirpation of the sac and (2) restoration of continuity of the artery. The latter was chosen.

The author emphasizes that while this is the ideal operation the danger of secondary hemorrhage with consequent loss of life is more to be feared than the gangrene which follows quadruple ligation.

A most important element in the operation is complete hemostasis in the operative field. The author suggests the use of an Esmarch bandage from the periphery to the aneurism and the application of a tourniquet just proximal to the aneurism.

In 1856 Broca classified aneurisms according to their external morphology. Moore suggests a new classification based upon their pathological structure as seen following their opening at the time of operation. Four types are distinguished each suggesting a different procedure in the repair.

1 A small communicating channel between the artery and vein caused by a small object. In such cases simple ligation of the fistula will restore the continuity of the vein and artery.

2 A small opening in the artery and a large tear in the vein which produce a sac at the expense of the vein and are caused usually by a large object. For such lesions obliterative aneurismorrhaphy with establishment of the continuity of the artery may be done.

3 A large hole in both the vein and the artery with interruption of the artery for a short distance and the formation of a sac with two openings for the artery and two for the vein. Obliterative aneurismorrhaphy is advised for such cases.

4 An aneurism at the site of an arterial bifurcation with two or three arterial openings into the sac. The treatment depends upon the conditions present which are determined after the sac is opened. Matas reconstructive or obliterative aneurismorrhaphy may be done. R. W. McNEALY, M.D.

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

**Perman E.** On Circulatory Conditions in Arterial Embolism of the Lower Extremities *A 14 cliug 5 s d 1927 lx 443*

An embolus in a given situation does not always cause the same distribution of symptoms. The variations are accounted for by differences in the development of the collateral circulation. This is true particularly where there is no secondary thrombosis.

On the proximal part of the thigh there are important communications between the internal iliac and the deep femoral arteries and on the distal part there are connections between the latter arterial system and the superficial femoral group of arteries. In obstruction of the popliteal artery there are possibilities for collateral circulation in the arterial system of the knee joint and in that of the calf muscles on account of the anastomotic branches existing between the sutal arteries and branches from the posterior tibial artery. All of these anastomotic communications and their great importance for collateral circulation are easily demonstrated with the X-ray. Anatomical studies have shown that in the adult they are easily visible macroscopically and sometimes of great size.

The author reports two cases which were operated upon. In one that of a woman with an embolus at the bifurcation of the aorta in the eighth month of pregnancy an attempt to re-establish the circulation was unsuccessful. In the other in which the embolus was situated at the division of the femoral artery the circulation was re-established.

**Lennerre A. and Duruy A.** Embolic Obliteration of the Right Common Iliac Artery Without Gangrene of the Limb (Oblitération embolique de l'artère iliaque primitive d'origine sans gangrène du membre correspondant) *Bull et mém Soc méd d'hép d Pa 1927 xli 385*

A man 38 years of age who had had acute articular rheumatism at the age of 23 years and well treated syphilis one year ago developed a streptococcal endocarditis. The right lower leg suddenly became engorged and thereafter felt dead. The arterial pulse of the limb which previously was normal completely disappeared but the circulation was not entirely interrupted as the leg and foot remained warm and their external appearance remained unchanged. The Pashon sphygmomanometer showed minimal oscillations beginning at 9 for the upper third of the thigh and beginning at 6 for the lower third. In tests on the lower leg there were no oscillations.

Eight days after the development of the was

turbance in the leg the patient died. During the eight days gangrene never threatened and the limb retained the same warmth and appearance as the opposite limb.

Autopsy revealed enlargement of the heart increased pericardial fluid mitral valve vegetations bilateral generalized and recent pleural adhesions, pulmonary edema enlargement and soft degeneration of the liver and large and small infarcts of the spleen. The right common iliac artery was completely obliterated by a black thrombus 5 cm long. The thrombus was very firm and intimately adherent to the walls of the artery and extended from the origin of the common iliac to the bifurcation penetrating about 1 cm from the origin of the external iliac and hypogastric arteries.

The circulation of the right leg could not have been assured by the hypogastric artery branches. In the authors opinion the blood supply was maintained by anastomoses between the internal mammary and lumbar arteries with the epigastric and circumflex iliac from the external iliac and the subcutaneous abdominal from the femoral. These anastomoses were very slender. The complete absence of the arterial pulse and the weakness of the Pashon oscillations indicated a very small blood supply to the leg. The circulation was sufficient to prevent necrosis and a change of color in the leg probably because the patient was confined to bed and during the last days of life was in a stupor.

WALTER C. BURKET MD

**Picaud and Moure P.** Popliteal Artery aneurysm treated by Resection of the Vein and Lateral Suture of the Artery (Anévrysme artériel de l'artère poplitée résection de la veine et suture latérale de l'artère) *Bull et mém Soc méd ch 1927 li 463*

**Moure P.** A Note on the Pathological Anatomy of Arteriovenous Aneurysms (Anatomie pathologique des anévrysmes artérioveineux) *Bull et mém Soc méd ch 1927 li 468*

Moure reports a case of popliteal arteriovenous aneurysm in which Picaud resected the vein and sutured the opening in the artery. He calls attention to the fact that in arteriovenous aneurysms of the extremities the best results are usually obtained by surgical treatment. The favorable outcome is due to the lapse of time between the primary injury and the operation which allows the development of a collateral circulation and reduces the likelihood of residual infection from the foreign body. Grigoread advocated a lapse of two or three months before operation is undertaken. Attention is called to the fact that operation on arterial aneurysms is often accomplished by the mobilization of clots which at times embolize and frequently produce gangrene in

stimulation by adrenalin whether the intracellular acidosis is caused by a lack of oxygen as in asphyxia gas poisoning circulatory disturbances and severe hemorrhage whether it is caused by the intravenous injection of acid or whether it is due to a disturbance of the physiological equilibrium of the cell by adrenalectomy or excision of the liver the ultimate result and the fundamental factors which accomplish restoration are the same

Shock is the result of an interference with the mechanism of the transformation of energy. As extremely diverse factors are synergistic in its production the cases may be divided into two groups one in which an excessive energy transformation leads to intracellular acidosis and the other in which there is interference with internal respiration without excessive transformation of energy

Best Smith and Scott found that the blood of an etherized dog contains 0.20 units of insulin per 100 c.c.m. whereas a normal dog's blood contains 2.03 units per 100 c.c.m. Schultze found acetonuria in 67 per cent of cases after general anesthesia in 85 per cent after local anesthesia and in 40 per cent after spinal anesthesia. Minetti states that there is a definite relationship between the hyperglycemia and the toxic symptoms associated with ether anesthesia and suggests that the treatment should follow the line found so successful in cases of diabetes

The author concludes that surgical shock is a subordination due principally to the insufficient elaboration of insulin in the tissues with a resultant acidosis probably intracellular as suggested by Crile. On this basis a preoperative preparation similar to that of Thallum has been worked out

In the author's usual procedure the patient is given 60 gm. of glucose in a glass of lemonade and 10 units of insulin by hypodermic injection the day before the operation. The insulin is given the day before the operation in order that the reaction will not come on unrecognized and in order that the antagonistic action of atropine which is administered preoperatively may be avoided. Patients prepared in this manner withstand long and difficult surgical procedures with very little postoperative reaction

GEORGE A. COLLETT, M.D.

#### ANTISEPTIC SURGERY TREATMENT OF WOUNDS AND INFECTIONS

Cox W. C. First Aid Treatment in Cases of Poisoning Due to Rattlesnake Bites. *M.I.S.* 971:53

In rattlesnake bite the fangs penetrate the tissues and the venom is injected usually into the subcutaneous tissue but sometimes also into the muscle or the blood stream. When it is injected into the subcutaneous tissue it causes an outpouring of lymph the pericellular lymph spaces become engorged and the venom is diluted and absorbed by the lymphatics and carried to the general circulation. When it is injected directly into the blood stream death usually results in a few minutes

The local signs and symptoms of rattlesnake bite

are: (1) fang punctures usually two of them from  $\frac{3}{8}$  to 1 in apart that look like large hypodermic needle punctures and bleed out of all proportion to their size (2) pain occurring immediately and becoming intense (3) swelling which begins immediately is very tender and brawny and extends and increases rapidly and (4) discoloration due to the action of the venom on the blood and tissues

The constitutional symptoms vary with the amount of venom injected. Two drops is considered a minimal lethal dose for man. A snake can inject as much as fifty drops. The average amount is 10 drops. The constitutional symptoms appear early. They include nervousness, cold sweats and a rapid weak and thready pulse. The respiration is rapid and the temperature may rise to 104 or 105 degrees F. Neurotoxic symptoms—nausea, vomiting, diarrhoea and collapse—may appear

In the first aid treatment a tourniquet should be applied to cause venous stasis but not tightly enough to shut off the pulse. Every twenty minutes the pressure should be lessened for from fifteen to twenty seconds and after the first aid treatment it should be discontinued. The primary incision should be a crucial incision made over the fang punctures and as deep as the punctures penetrate. Suction should be applied to this incision to wash out the wound with blood. This takes from ten to fifteen minutes. The mouth may be used. After the first suction a series of small crucial incisions just into the subcutaneous tissue should be made above and below the bite and suction applied for thirty minutes. By washing the wound with blood the venom is removed and the pain lessened

Extreme hemorrhage is not desirable as the venom destroys the blood. The only object of inducing hemorrhage is to wash out the lymphatics. A tourniquet should be applied during the suction. When the bite is on an extremity the swelling can be used as a guide to the extent of the incisions. If the swelling advances more incisions should be made as it is at the edges that the venom is absorbed. After the suction has been continued for thirty minutes a rest period of thirty minutes should be given. The suction should then be reapplied for another half hour. The fluid obtained at this time will be of a different character, being made up of hamolyzed blood, lymph and diluted venom

Following the second suction period a hot saturated magnesium sulphate dressing should be applied and kept hot. If constitutional symptoms develop the use of serum is indicated

Suction should be repeated every hour while the incisions are draining or swelling persists

The use of morphine is contraindicated

JAMES B. BROWN, M.D.

Lee W. E. and Downs T. McK. The Surgical Treatment of Carbuncles. *S. A. M. J.* 97:1521-1525

Carbuncles differ from other forms of suppuration of the subcutaneous tissues in the anatomical and

# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

Gabriel W B Skin Grafts for Fistulae *P oc*  
*Key Soc Med Lond 19 7 xx 1 78*

Gabriel reports a case in which there was evidence of spontaneous skin grafting on a large open wound twelve days after a fistula was opened. In his next two cases he attempted skin grafting. In his second case the effort was successful. The patient had a large perianal abscess. When this was opened four Thiersch grafts were applied to the raw surface. The grafts were left exposed to the air and kept moist by dropping saline solution upon them every few hours. Three of the grafts took well. The wound was completely healed twenty two days after the skin grafting. Gabriel concludes that in selected cases of fistulae with flat granulating surfaces Thiersch grafting is a good method of accelerating healing.

ARTHUR L SHREVE MD

Coffey R G Application of the Principles of the Quarantine in Abdominal Surgery *Am S 12 9 7 lxxv 808*

Coffey citing latest work on the local effects of peritoneal drainage states that drainage produces a flow of serum which in quantity is almost out of proportion to the fluid in the cavity to be drained but in exact proportion to the amount of drainage material that is inserted a fact indicating that the serum is poured out as a result of the irritation produced by the drains. Capillary drainage is usually established by means of gauze. Gauze will not efficiently drain pus or blood from a closed abscess cavity but will drain such material from the free peritoneal cavity. It will drain even coagulated blood or thick pus because they are liquefied by the excessive flow of serum.

Experimentally it has been found that ten gauze wicks will drain exactly ten times as fast as one gauze wick. Therefore if a drain is to be used in the peritoneal cavity it must be of sufficient quantity and of proper quality to deliver to the surface within a few hours the substance to be drained as well as the excess serum. If gauze is used for the drain it must be considerable quantity and the diameter of the drain must be as great where it emerges through the abdominal wall as at any point within the abdominal cavity. Moreover it must be surrounded by a smooth impervious substance such as rubber tissue.

For isolation and the application of the quarantine as a fundamental principle the drain must be smooth on the side of the peritoneal cavity and noninfective to the abdominal organ coming into contact with it. It must remain accurately in

place and provide ample drainage of the infected or injured segment. In addition it must be so constructed that it may be removed with minimal trauma.

These requirements are met by using an outside rubber tissue covering arranged in gauze wicks around the affected area leading the gauze to the surface and arranging the wicks so that they may be pulled one at a time without disturbing the defensive wall that has been formed around the quarantine.

The wicks used by the author are made from strips of gauze 5 or 6 in wide cut across a 36-in bolt of gauze. All of the cut edge are turned in and ironed out and the wicks are twisted. Twelve wicks are spread out in a fan to surround the area to be quarantined and rubber tissue is wrapped around them. Coffey uses his quarantine for the following indications:

1 Infection of the uterus and tubes such as follows: miscarriages, criminal abortion, gonorrhea, infection, etc. Frequently conservation of the pelvic organs results.

2 Sepsis or gangrene of the gall bladder such as is apt to occur in feeble or old persons.

3 Retrocaval or subcaval abscess in cases of appendicitis.

4 Common bile duct surgery in which the bile ducts are infected.

5 Lesions of the pancreas such as abscess.

6 Necrosis of the bowel when the patient's condition will not permit a radical operation.

7 Extensive pelvic conditions in which large areas of peritoneum have been removed at operation.

8 The prevention of intraperitoneal adhesions.

The wicks of the quarantine are removed under painless nitrogen oxide anesthesia after six or seven days. The rubber tissue is removed without anesthesia fourteen days after the operation, no banding the belt inserted. J AM H GARDNER MD

Anderson G M The Use of Glucose and Insulin in the Treatment of Surgical Shock *Cal J 12 11 1 12 d 9 7 xx 74 50*

Shock may produce glucose exhaustion or be manifested only by an increase in the pulse rate, a fall in the blood pressure, and the presence of acidosis. The form of acidosis occurring is surgical and anoxic shock. It is a ketosis brought about by the incomplete or faulty metabolism of fatty acids such as occurs in starvation and diabetes.

Whether an intracellular acidosis is established in the brain cells as the result of excessive functional activity forming a rapid by-products faster than they can be eliminated as is the case in excessive emotion, physical injury, emotion, electrical stimulation and



evidence (which they are reserving for publication elsewhere) that these favorable effects may some times at any rate be accompanied by a very striking auto-immunization as shown by greatly increased bactericidal power of the blood

WILLIAM J. CARSO M.D.

### ANÆSTHESIA

Eichholtz F and Butzengeiger O Rectal Anæsthesia with E 107 (1) E Re t lna kose m t E 10 )  
 (r T f d d u t k G f Ch I e t l 9 7

Eichholtz reported that E 107 or avertin a rectal anæsthetic first prepared by Willstaetter the chemical name of which is tribromethylalcohol was sent out by the I C dye works after careful testing to various hospitals and clinics for trial

The preparation of the substance which was originally done by Willstaetter by yeast reduction of bromal (bromal is tribromacetaldehyde  $\text{CBr}_3\text{CHO}$ ) is now done on a larger scale by other methods When an aqueous solution is heated to 70 degrees C. hydrobromic acid is released and there is formed dibromacetaldehyde which is very injurious to the gastro-intestinal tract Therefore the solution must be prepared strictly according to the following directions

Heat in a glass flask to  $45^\circ\text{C}$ . a sufficient quantity of water to make the desired percentage solution and then add the weighed amount of the E 107 After heating for five minutes a clear solution will be obtained This must be used within twenty hours

Since these directions have been followed complaints of bowel irritation have become less frequent

The substance has been given to man as often as fifty times and to rabbits as often as fifteen times without injury The anæsthetic effect of the rabbits was always reduced by a filling of the stomach with water before the anæsthetic One advantage of the anæsthetic is the rapid onset of action following its use. It turns to consciousness without any convulsions. In animals anæsthesia is obtained by the following doses: 0.030 gm per kilogram of body weight in respiration ceases only when the fatal dose is given The fatal dose is more than 0.5 gm per kilogram of body weight In a series of experiments it was found that removal of the thyroid epithelium of the skull with removal of all parathyroid glands the temporal lobe and the production of artificial life a well established increase in the time required for the cessation of the other hand the percentage survival in animals by the removal of the thyroid glands

In the clinical experiments with the anæsthetic for human use the following dose of 0.03 gm per kilogram was used but a smaller dose of 0.01 gm per kilogram was used in the case of a child with a body weight of 35 gm. The animal was followed by marked excitation, drowsiness, and finally the animal was decreased to 0.03 gm per kilogram of body weight

On the evening before the operation 0.02 gm of pantopon is given Twenty minutes before the operation the anæsthetic solution is injected in a dose of 0.1 gm of E 107 per kilogram of body weight The patient is usually asleep after from five to eight minutes If no change is noted after six minutes a dose of 0.025 gm per kilogram is given and if there is still no change after a further ten minutes a third dose of 0.025 gm is given The maximum dose is 0.15 gm per kilogram of body weight

The effect produced upon the patient during the narcosis is that of a deep sleep As a rule this sleep continues for from one to four hours The return of consciousness occurs gradually without vomiting or a toxic feeling Any excitation can be easily overcome with pantopon If the anæsthesia is not deep enough ether is given but the amount used even in long operations never exceeds from 60 to 100 gm The use of chloroform is to be strictly avoided Unpleasant after effects such as intestinal irritation have not been noted since the Lieberfeld directions have been followed

The substance has been used for about 300 anæsthesias 200 of which were for laparotomies Younger patients require larger doses than older patients In the cases of patients between 60 and 80 years of age doses of from 0.03 to 0.050 gm per kilogram of body weight have often sufficed Special care must be taken in the cases of patients who are dehydrated anæmic or cachectic and those with hepatic disease as the drug is eliminated through the liver Rectal anæsthesia is contra-indicated in inflammatory conditions of the colon and in operations about the anus Butzengeiger believes that the method is a great advance provided the doses recommended are adhered to and a full anæsthesia is not forced in every case

In the discussion of this report Nordmann (Berlin) stated that in the last nine months he has tried E 107 in 250 cases He has performed the most varied operations with it More than half of them were laparotomies five were thyroidectomies for severe Basedow's disease and others were operations with an unfavorable prognosis on patients ranging in age from 15 to 80 years Nordmann is opposed to a system of dosage by kilograms of body weight based on the findings of experiments on animals He bases his dosage on the requirements of the particular patient and in every instance takes the patient's constitution into account He gives women a smaller dose than men In 50 per cent of the cases intubation was necessary in addition to the usually small amounts of ethyl chloride or ether were sufficient Chloroform and mixed anæsthetics were avoided Nordmann refrains from giving additional doses because of the risk of deepening the anæsthesia In his first cases proctitis and tenesmus occurred but in his last 20 cases in which he gave the anæsthetic in saline solution there were no intestinal irritations or other harmful effects proctitis and development of two early cases The occurrence

mechanical factors present in the regions in which they occur namely a thick tough true skin connected with the underlying dense fascia by strong vertical fibrous septa. These factors not only delay the breaking of the original focus through the skin but force it to extend laterally and become pocketed in the honeycombed like area.

The treatment consists in the relief of tension and the removal of dead tissue. As the carbuncle resembles a honeycomb the incision to relieve tension must be made at right angles to the cells. In the method used at the Pennsylvania Hospital the involved area is divided into four sections by a crucial incision extending well beyond the indurated area in all directions. Each flap is then undercut with a sharp knife parallel with the skin and about midway between the skin and the deep fascia. These incisions also extend beyond the periphery of the indurated area. Cause soaked in some germicide is packed under each flap and removed after from twenty four to forty eight hours. The dead tissue sloughs within six or seven days at the most and the flaps are then allowed to fall into the wound to be held by a ligature straps or second ary sutures.

Other methods are not reliable. The crucial incision alone is not sufficient. Complete excision is more radical than is necessary. Involves a greater loss of time and causes more extensive scarring and deformity.

(WRIGHT & COLEBROOK 1922)

#### Colebrook I and Hare R. The Bactericidal Action of Mercurochrome. *Bull J Exper Med* 1927 19

In view of the discrepancy between the results of Young and of Walker the following experiments to determine the bactericidal action of mercurochrome were carried out by Colebrook and Hare.

**Experiment 1.** Graduated dilutions of mercurochrome in distilled water were made and of these in each case one part was added to nine parts of defibrinated human blood. After one hour at room temperature the bloods were centrifugized and the sera pipetted off. The bactericidal power of these sera was then determined a staphylococcus and hemolytic streptococcus being used as the test organisms. The test was carried out by incubating in capillary pipettes 25 cmm volumes of each serum with 5 cmm volumes of a series of dilutions of the microbic culture and then explanting these infected sera into melted agar in a Petri dish.

**Experiment 2.** Samples of defibrinated human blood were mixed with mercurochrome as in Experiment 1. Each sample was then infected with staphylococci and its power to kill these microbes determined by incubating in slide-cells as described by Wright, Colebrook, and Storer (1923).

**Experiment 3.** Samples of blood were drawn from a rabbit before and after also after an intravenous injection of mercurochrome (5 mgm per kilo). After separation of the serum from each of these

samples a bactericidal test was carried out as in Experiment 1 by the explantation method.

**Experiment 4.** Blood was drawn from a rabbit before an intravenous injection of mercurochrome (5 mgm per kilo). Half an hour later a second specimen of blood was taken the rabbit killed and bile immediately collected from the gall bladder. A control specimen of bile was collected from a second (untreated) rabbit. Serum obtained from the two samples of blood and also the bile specimens from the normal and the treated animals were then tested with respect to their power to kill bacilli typhosus. The reservoir pipette technique introduced by Wright for this purpose was employed (Wright and Colebrook 1922).

The results were as follows:

1. Serum derived from human blood treated with mercurochrome (1 in 40,000 to 1 in 10,000) had no bactericidal power for staphylococcus or hemolytic streptococcus.

2. Human blood (defibrinated) which had received an addition of 1 in 10,000 of mercurochrome had considerably less power to kill staphylococcus than the same blood without mercurochrome.

3. Bile derived from a rabbit which had been given a maximal dose (5 mgm per kilo) of mercurochrome possessed no bactericidal power for bacilli typhosus. The normal bactericidal power of bacillus typhosus possessed by the serum of this rabbit was not increased by the injection of the drug.

These results suggest that no direct bactericidal effect either in the blood stream or the bile is likely to follow the administration of mercurochrome. They therefore afford no support to the recommendation that the drug should be employed in epidemic and for the treatment of typhoid carriers. It may be objected however that the clinical records of many cases already published furnish a certain amount of evidence that the use of the drug has in some manner contributed to the recovery of patients suffering from severe septic infections. The authors do not attempt to discuss these clinical records critically but put forward tentatively a possible explanation of them.

The records make it clear that the injection of the drug in man is very frequently followed by formidable constitutional disturbances as shown by the occurrence of hæmaturia, violent purging, rigors and stomatitis. This being the case it seems to the authors possible that the remarkable clinical improvement which is said to have occurred in some of the septicæmic cases within a few hours after the injection of the drug may have been brought about not by a direct effect upon the microbic infection but by an autoimmunization process initiated by the severe constitutional disturbance. It is well known that such profound disturbances—for example those manifested by collapse and the occurrence of rigors in protein shock—may exert a favorable effect upon the course of bacterial infections and the authors have

noted. In a few instances three or four watery stools were passed but there was no permanent disturbance. The falling off to sleep and the awakening are agreeable.

KREUTER (Nuremberg) reported on 300 anesthetics. The dosage was 0.15 gm per kilogram of body weight. In 68 per cent of the cases complete anesthesia was obtained. In 6 per cent ether was necessary in addition. In 6 per cent the result was unsatisfactory. Kreuter has done operations of various types under rectal anesthesia so induced and noted no injury from it in only two cases was there a catarrhal condition of the bowel.

FRIEDMAN (Berlin) deplored the schematic dosage. He believes the attempt should be made to obtain full anesthesia. He has obtained faultless anesthesia with from 10 to 1 gm and has noted no harm from it. He dissolves the drug in gum arabic.

KIRSCHNER (Koenigsberg) opposed the use of the agent in its present form, stating that four deaths in

such a small number of cases as those reviewed are too many when it is possible to induce 10,000 ether anesthetics without a fatality. Small doses of the anesthetic are not sufficient and with large doses an alarming fall in the blood pressure takes place.

BRINCKMANN has used F 107 for fifty-five anesthetics. Sleep was maintained for about three and a half hours. In two cases there were very alarming complications (respiratory and cardiac disturbances). Late injuries, pneumonia and bronchitis occurred twice. One marked drawback to the method is the marked fall in the blood pressure.

Fichholtz in summing up emphasized the importance of following directions. He stated that the I. C. division has not yet released the drug but he regards it as worthy of a further trial.

Butzengeiger deplored the high doses which were reported as being used at the Koenigsberg clinic.

STETINER (?)

of marked excitation at a cease! The anæsthetic must not be administered under high pressure Nordmann described a simple bulb to regulate the pressure. He thinks it wise to remove any of the anæsthetic that is left in the bowel by means of an enema. While he emphasizes the pleasantness of the sleep and the awakening he sees a disadvantage in the long sleep following the operation as it requires a long period of observation.

SALFROBERT (Munich) stated that at first he refrain from using the anæsthetic because the findings of experiments on animals did not seem to him conclusive but after hearing favorable reports from various clinics he began to try it out. He has since at an interval as he had unfavorable experiences with it. In some cases the patients were still very cyanotic appearing within four hours after the operation. In another case severe tympanic symptoms appeared after the operation. Two patients with marked intestinal symptoms died 10 days after an amputation and a third died with similar symptoms after an operation for gastric carcinoma. At autopsy the intestine showed marked changes (erosions and hemorrhagic infiltrations). In conclusion Sauerbruch stated that when it is possible to use the anæsthetic of these dangers he will use it again. At the present time he does not regard it as suitable for general use.

REISCHAUER (Breslau) reported upon sixty anæsthetics. In the cases of young persons a dosage of 0.15 gm. and in those of older persons a dosage of 0.1 gm. per kilogram of body weight was used. For patients under 45 years of age as much as 0.2 gm. has been given. In a large number of cases complete anaesthesia was not of course. In the very robust patients an acute circulatory disturbance was noted. There were two deaths. In one instance death was due to cardiac lypæmia which came on four hours after the operation. Autopsy revealed about the same condition as that seen in cases of late chloroform death (fatty degeneration of the liver and kidneys). Reischauer emphasized the great variation in the length of time the drug remains in the body. Because of this it is impossible to establish a definite dosage and the drug is not harmless. In some cases it does not give complete relaxation of the abdominal wall. In laryngeal anaesthesia being necessary in addition. In such cases usually no greater than that of any other anæsthetic agent.

LACER (Berlin) reported on 14 anæsthetics. He emphasizes the importance of following the directions in marking the solution. The solution is 10 c. cent. In the cases reviewed the dosage ranged from 0.1 to 0.15 gm. per kilogram. The patient goes to sleep quickly and there is no excitation during the process of induction. Chloroform in small doses may be necessary in addition but long periods are not the use of lumbal anaesthesia. In the cases reviewed there were no deaths but in eight there were severe asphyxia without cyanosis and long

periods of respiratory cessation. Camphor and lobeline are valueless. Unger has used the anæsthetic successfully for gall bladder, gastric and intestinal operations even in the cases of patients with marked jaundice. It was employed also in the cases of patients who had just recovered from grappalæmia. The long sleep requiring constant attention is disadvantageous but in Lacer's opinion the anæsthetic deserves further careful trial.

MEYER (Koenigsberg) reported on 100 anæsthetics induced with ether. He has used the anæsthetic in the cases of children and patients of every age and of both sexes. Twenty of the operations were laparotomies. Meizner has never noted irritation of the colonic mucosa. The falling off to sleep is agreeable. In only half of the cases was the anaesthesia so deep that inhalation anaesthesia was unnecessary. In three instances the drug failed entirely. As a rule the awakening was good. Vomiting did not occur. The after sleep lasted as long as ten hours is a disagreeable feature. The patient cannot be awakened. In some cases severe postoperative excitation occurs (motor unrest and hallucinations continuing, sometimes for twenty-four hours). Serious complications arose during the operation. A marked fall in the blood pressure occurred five times. The patient recovered after the administration of camphor and adrenalin. There were four deaths (brain tumor, gastrostomy, Basile's disease and simple gastric). Meizner emphasized the inconvenience of the use of individuals to age. From the experience reported he concludes that the anæsthetic is most dangerous than others.

DIETZ (Cologne) discussed the drug after 140 degrees Celsius. The dosage was 0.1 to 0.16 gm. per kilogram of body weight. At first he dissolved the anæsthetic in normal salt solution but later used distilled water. At times he has found a small amount sufficient. He has not noted organic injuries but in several cases there was some intestinal irritation. In sixty cases there were two deaths but the cause could not be attributed to the anæsthetic.

MEYER (Leipzig) welcomes the drug as a good anæsthetic for pediatric surgery. In fifty-five cases complete anaesthesia and in fifteen a satisfactory anaesthesia was obtained. In eight cases the anaesthesia was unsatisfactory and in eleven the procedure failed entirely. The failures were due in part to the pulling of the anæsthetic. The induction must be immediate. The preparation of the cases of children up to 15 years of age is from 0.1 to 0.5 gm. per kilogram of body weight. In those of older children from 0.1 to 0.15 gm. per kilogram of body weight. Except for a few cases of proctitis there were no deaths. In two cases there were circulatory disturbances and in two others there were respiratory disturbances. In one case there was a marked decrease in the blood pressure. The reduction of provocation of general anaesthesia in these complications. Degree of disturbance were not

which contained stones but was without a trace of cancer. In another case one of carcinoma of the liver the histological examination disclosed tuberculous.

After a detailed discussion of fifty three cases representing (1) simple spontaneous cure of carcinoma or carcinoma recurrence (2) spontaneous cure following a palliative operation (3) spontaneous cure following an incomplete operation (4) the influence of febrile disease on spontaneous cure and (5) the spontaneous cure of sarcoma Strassman comes to the conclusion that when compared with the hundreds of thousands of cases of carcinoma these few cases are not sufficient to render promising any therapeutic basis upon a theory derived from them. He calls attention to the fact that Doederlein has never seen a spontaneous cure and Werner saw none in a material of 15,000 cases of cancer.

CRUEL (1)

Ullmann H J The Use of Colloidal Lead in the Treatment of Cancer After the Method of W. Blair Bell Preliminary Report *A d I g* 1927 1 47

Sittenfeld M J The Cancer Problem with Reference to Recent Developments *A d I g* 1927 1 45

Solland A Costelow W F and Meland O V The Metallic Colloids in the Treatment of Cancer A Preliminary Report *A d I g* 1927 1 459

ULLMANN reports that he has used colloidal lead in the treatment of cancer after the method of Blair Bell in a number of cases and has found that the clinical and toxic effects show marked variations. Remissions, liquefactions and no demonstrable effects on the tumors were observed in different cases. In no case in which the total dose of lead was less than 200 mgm. was an appreciable gross effect on the tumor demonstrated. Autopsy: lumbar pain constantly followed the injection and in some cases there was abdominal pain. Chills occurred in some instances and a sharp rise in the temperature was fairly constant. Pain in the tumor or moderate increase in its size, nausea, vomiting and anorexia were the rule, especially after the first dose. Hematuria was found from twelve to forty-eight hours after the injection in nearly every instance but soon disappeared. An acute nephritis and a decrease in kidney function were practically constant. The blood showed the most marked and alarming of the toxic effects. There was a primary drop in the hemoglobin followed later by a decrease in the red blood cell. Stippling of the red cells was practically constant and persisted for a variable time.

From his observation of it, he is of the opinion that colloidal lead should not be used if the patient is unable to stand a reduction of at least 30 per cent of his kidney function if neither a rise in the hemoglobin is below 10 per cent or the red blood cells below two million per cubic centimeter in a red cell count. While in

volvement of the liver is not a contra indication it increases the dangers of the treatment.

As the toxic effects in a large majority of the cases were so alarming that the doses recommended by Blair Bell could not be given efforts were made to find a less toxic preparation. A colloidal lead phosphate was found to have no effect on the hemoglobin of rabbits injected with it over a period of six days. When this was used on patients its effect on the tumor was apparently similar to that of colloidal lead and its toxic effect was negligible.

SITTENFELD also discusses the Blair Bell treatment but states that his experience with it clinically and experimentally is not sufficient to permit him to draw definite conclusions. He cites Blair Bell's work at some length from both the theoretical and the practical aspect. The statement is made that the lead treatment as it is now known is applicable only to cases of advanced and non-surgical cancer and in these only in conjunction with roentgen ray and radium irradiation.

Other recent developments of the cancer problem discussed briefly by Sittenfeld are the work of Warburg and his collaborators regarding the metabolism of the cancer cell, gives investigations indicating the infectivity of a cell-free filtrate in the production of some sarcomata and the work of Hurrows dealing with a local vitamin imbalance in the organism as a cause of cancer.

SOLLAND, COSTELOW and MELAND report the results in cases of malignancy treated by them during the past year with colloidal metals as a supplement to radiative therapy. In none of the cases in which colloidal gold was used was there any apparent effect on the growth. Colloidal copper also failed to produce notable effects except in one case of inguinal metastases. In the latter the growths diminished in size but generalized metastasis and death soon followed. The results obtained with colloidal lead also were disappointing. Twelve cases were treated all of them postoperative recurrences or cases related to the saturation point and hopeless from the point of view of any other treatment. A brief review of the case records is presented. Only two of the patients showed any apparent improvement. In two cases death was undoubtedly hastened by the treatment.

WOLFE H. STANLEY

Jegorov Spontaneous Cancer in (pentanogen) 1926 1 23 337 and 454

This monograph is based on forty cases of spontaneous cancer treated in the period from 1911 to 1924.

The author divides the history of the condition into three periods: (1) the Warwater period (pre-arteriosclerosis), (2) the Zeigler von Vanscheff period (atherosclerotic gangrene) and (3) the Oppel period (arteriosclerosis supra-nalis).

The discussion is based on the clinical characteristics of the condition with a review of the literature.

## MISCELLANEOUS

### CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

**White C and Weidman F D** Pseudo-Epitheliomatous Ulcers at the Margins of Cutaneous Ulcers with Especial Reference to Histological Diagnosis. Report of Eight Cases. *J Am Med Ass* 1937 LXXXVI 1959

The authors state that while it has always been recognized that epidermal hyperplasia may take place at the margins of cutaneous ulcers the extent to which it may develop histologically does not appear to have been emphasized or evaluated heretofore.

Their studies show that every gradation of hyperplasia occurs in such ulcers even those which resemble early epithelioma histologically.

In some of its early stages and even when the lesion is definitely developed it may be impossible to distinguish squamous cell cancer histologically from non malignant hyperplasia. Accordingly there are definite limitations to the recognition of early cancer.

The authors conclude that the diagnosis of carcinoma in such cases is justified only when the infiltration extends to or beyond the level of the sweat glands and the pathologist is well acquainted with the behavior of hyperplastic epidermis in general.

FRANK J MCGOWAN M D

**Fujimaki Y** The Formation of Gastric Carcinoma in Albino Rats Fed on Deficient Diets. *J Cancer Res Clin* 1936 X 469

The author has attempted to show that gastric carcinoma can be produced experimentally by diets deficient in Vitamin A, proteins and certain inorganic salts. These diets must contain all necessary nutritive elements except vitamins must supply the necessary calories and must be digestible and palatable. In the experiments reported which were performed on rats casein was used as the source of protein, dextrin as the source of carbohydrate and olive oil as the source of fat. The methods used to purify these substances of Vitamin A are described. The diets consisted of food materials mixed in the following proportions:

Diet deficient in Vitamin A: dextrin 65 per cent, casein 18 per cent, olive oil 10 per cent, yeast 2 per cent, and salt mixture 5 per cent.

Diet deficient in Vitamin A and protein: dextrin 83 per cent, olive oil 10 per cent, salt mixture 5 per cent, yeast 2 per cent, Daikon juice 2 ad libitum.

Diet deficient in Vitamin A and inorganic calcium and phosphorus: dextrin 68 per cent, casein 18 per cent, olive oil 10 per cent, yeast 2 per cent, and salt mixture 5 per cent.

The diet deficient in Vitamin A was continued for from two to twelve months that deficient in Vitamin A and protein for from one to four months and that deficient in Vitamin A and inorganic calcium and phosphorus for from two to five months. During the feeding each rat was kept in a separate cage. Freshly prepared food was given four times a week. The body weight was determined twice a week at a definite time.

Necropsy often revealed hemorrhage in the stomach. In the fore stomach pale grayish circumscript thickened areas were often found. These ranged in number from two to twenty and frequently were as large as peas. In their centers there were sunken or concave pits.

From the microscopic findings the author concludes that carcinoma begins with hyperkeratosis. The hyperkeratosis is followed by growth of papilloma, heterotopical extension and finally conspicuous destructive extension of cell growth in cancerous transformation.

FREDERICK C BA CROFT M D

**Strauss O** The Spontaneous Cure of Carcinoma. The Findings of an Inquiry Made with the Aid of the German Central Committee for the Study and Control of Cancer (Ueber die Spontanheilung des Carcinoms. Ergebnisse einer Umfrage mit Unterstützung des deutschen Zentralausschusses zur Erforschung und Bekämpfung des Krebskrankheitszustandes). *Ztschr f Krebsk* 1937 XLI 367

The purpose of this investigation was not to collect a series of unusual cases of cancer but to determine whether the term spontaneous healing is justified. Only if it is justified is there any value in attempting to build up a method of treatment having as its object the strengthening of the defensive mechanism of the organism. It seemed desirable to determine also whether the number of spontaneous cures as compared with the great number of cases without such cure is of any significance.

The author calls attention to the fact that since the work of Lomer published twenty four years ago there has been no change in the status of the question except that we have added to our terminology certain words with a scientific ring which hide our ignorance and that as a result of a more critical attitude the number of accepted cases of spontaneous cure has become somewhat less.

From the data collected Strauss is unable to escape the impression that error in the diagnosis plays an important rôle. He reports a case of his own in which a tumor diagnosed as laparotomy as an inoperable carcinoma of the gall bladder subsequently receded spontaneously. Autopsy performed seven years later disclosed a gall bladder

to the highest possible level and there is abundant clinical evidence indicating that especially in surgical tuberculosis this may be done by heliotherapy.

Allison reviews his observations at the clinics of Rollier in Leysin, Switzerland; Gauvain at Alton Bristow at Lyrford and Girdlestone at Oxford, England, and at the New England Peabody Home for Crippled Children in Newton Center, Massachusetts.

According to impressions gained at the Rollier clinic, the great catastrophe of surgical tuberculosis is surgical interference. The treatment indicated is rest and exposure to the sunlight. The length of time required for a cure is of secondary importance. Surgical interference is dangerous at best and in most cases except those of renal tuberculosis leads to disaster. In renal tuberculosis, however, removal of the tuberculous kidney is necessary.

At the Rollier clinic cases are treated with heliotherapy for periods ranging from two to ten years. Interruptions in the treatment are dangerous. It is claimed that a complete cure is finally accomplished. The cure is judged from the roentgenographic record. The advisability of the resumption of function is decided by the roentgenologist who has no clinical knowledge of the patient's progress. When the X-ray plate shows reconstruction of a joint or a sufficient block about disease in the vertebra, the patient is allowed up and about. Recumbent patients use their muscles and move the diseased joints as much or as little as they wish. Spinal disease is treated by recumbency without braces or jackets. Hyperextension of the spine is actively encouraged so that the erector spinae muscles become well developed and strong. During convalescence the apparatus used for protection is of the lightest type possible—celluloid or light splints.

In the New England Peabody Home for Crippled Children it has been found that in spinal tuberculosis success in improving the deformity depends upon the regional localization and the extent and duration of the disease. In cervicodorsal tuberculosis there is no improvement, whereas in cases of upper dorsal tuberculosis improvement results in 30 per cent, in those of midthoracic tuberculosis in 50 per cent, in those of low dorsal and dorsolumbar tuberculosis in 66 per cent, and in those of lumbar tuberculosis in 90 per cent. Practically complete correction of the deformity is possible when only two adjacent vertebral bodies are diseased.

Hips and knees have healed to the extent that weight bearing without reactivation of the symptoms is possible. In tarsal involvement marked improvement has resulted. Spina ventosa finally heals with little residual disturbance of function and surplus little deformity.

Heliotherapy should be supplemented by rest, good food, fresh air, surgical protection of the diseased areas and pleasant surroundings. In many cases Allison has employed blood transfusion with benefit.

In conclusion Allison states that the end results of heliotherapy are as yet to be estimated. How much and how permanent healing takes place is still unknown. Enthusiasm over that is now accomplished at institutions employing heliotherapy may lead to the belief that tuberculosis in its surgical manifestations is a conquered disease process, but disappointment will surely be the result of this belief. At present surgery has a definite part to play in the cure of tuberculosis. Operations designed to assist the body in healing are of value and repeat frequently in apparent cure and lessening of the period of invalidism.

Allison believes that in the cases of children with bone and joint tuberculosis the element of time required for treatment may be largely disregarded, but in those of adults it is of great importance, especially when ultimate cure means the final ankylosis of a joint.

The article is supplemented by a number of roentgenograms and photographs.

CARL R. STEINKE, M.D.

## DUCTLESS GLANDS

Wintz H. E. *periences with Regard to the Influence of the Roentgen Rays on the Glands of Internal Secretion* (Erlangen mit der Bezeichnung in raketische Drüse der Roentgenstrahlung) *St. H. the ap. c. 927 XXI 4 2*

The glands of internal secretion act upon one another not only through the blood stream but also through the medium of the sympathetic nervous system. The latter also exerts an influence upon the endocrine system.

The different glands of internal secretion vary in their sensitivity to the X-rays. Those irradiated at times of increased activity are more sensitive than others. With graded dosages of roentgen irradiation the following effects on the glands are conceivable: (1) total destruction of all parts of the gland without injury to the surrounding tissues; (2) temporary damage to all cell structures such that the less sensitive tissues can eventually recover; (3) permanent destruction of the very sensitive cell structures with no damage to the less sensitive cells (a prerequisite for this effect is sufficient difference in sensitivity between the various cells); and (4) increased activity of the cells (stimulation).

For Results 2 and 4, very exact dosage is necessary. This is rendered difficult by the situation of the gland as regards the tissue lying over and under it, which causes not only quantitative but also qualitative changes in the dosage. With this fact in mind it has been found that in the ovary the following changes can be produced:

With 45 per cent of the skin erythema dose destruction of all of the internal secretion portion of the organ and preservation of only the connective tissue stroma.

With 34 per cent of the skin erythema dose permanent amenorrhoea. In this case the changes due





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to the deficiency in ovarian function are less marked than after total castration as the internal secretion of the thecal-cell daughter cells is not affected.

With 28 per cent of the skin erythema dose only temporary amenorrhoea results which alter from one to three years gives place to normal ovulation and may even be followed by pregnancy with normal offspring.

As is well known the occurrence of one or more additional menstruations after irradiation depends upon the time during the intermenstrual period at which the treatment is given and the damage that is done to the graafian follicle and the corpus luteum formed from it. The cells of the corpus luteum vary in their sensitivity to irradiation according to the stage of their development at the time of the exposure. The corpus luteum is less sensitive than the graafian follicle. Of the various developmental stages of the corpus luteum sensitivity is greatest in the proliferating stage, less marked in the secretory stage, still less marked in the lipoid stage and least marked in the obliterative stage. The sensitivity of the ovum parallels the sensitivity of the follicle in that it increases as the follicle grows but on its liberation from the follicle it becomes insensitive. This explains why ova already released at the time of irradiation may be fertilized and develop into undamaged embryos while ova which are still in the process of development during exposure to the roentgen rays are destroyed by the same dosage.

From the follicles damaged by irradiation there develop corpora atretica which during the time of the temporary amenorrhoea take up the function of the corpora lutea sufficiently to prevent disturbances in the general condition. However such corpora atretica are preserved only if the dosage does not exceed 34 per cent of the skin erythema dose. When 45 per cent of the skin erythema dose is given they also are destroyed whereupon the entire internal secretion of the ovary ceases and marked symptoms

of ovarian deficiency appear. A difference between 28, 34 and 45 per cent of the skin erythema dose is evidenced also in the effect on the metabolism. With increasing doses the basal metabolic rate is lowered to a corresponding degree.

The relation between the ovaries and the other glands of internal secretion is extraordinarily labile. With regard to relations between the ovary and the thyroid roentgen treatment has demonstrated the following facts:

1. In thyrogenic dysfunction of the ovary caused by hyperfunction of the thyroid gland irradiation of the thyroid stops the polymenorrhoea and dysmenorrhoea.

2. In hyperfunction of the thyroid due to ovarian influences such as an inflammatory condition temporary exclusion of the ovary results not only in cessation of the polyhypermenorrhoea but also in remission of the beginning hyperthyroidism.

3. In ovarian dysfunction due to a hypothyreosis the most definite forms such as myxoedema lead to genital aplasia but the formes frustes lead to polymenorrhoea. The latter may be favorable influenced by the administration of thyroid preparations. Irradiation of the ovaries would of course be contra-indicated in this condition. Cases of hypothyroidism with amenorrhoea react well to the combined administration of thyroid and ovarian substances. Stimulation irradiation has failed in this condition.

The relation between the ovary and the hypophysis may be influenced by radiation when hypermenorrhoea is present on the basis of hyperpituitarism. A single exposure of the hypophysis gives a good result.

Several observations have shown that there is a relation also between the thymus and the ovary. As yet however the nature of the action of the X-rays has been too little studied and the findings are too contradictory to warrant general rules for roentgen treatment.

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 Teste g l a d p p a u s C L O S E R M A t s h f c l i s h u C y n k 9 6 1 4  
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 B t e r i o l o g i c a l a n d b i o l o g i c l s t u d e o f t h m i c r o g a n m s p e n t i n t h a g a d t h r e l a t i o n o f t h l i c d a n g p o w e r s o f t h v a g i n a R D E M M E A c h f Gynaek 9 7 c x i x 913  
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 Th C h r i s t l i m e t h o d f t o p o g a p h c l h t l o g c a l e c t n d i s t a l e t h e t e a h g o f g y n e c o l o g y W L I E M A N Z i s c h f G e b u r t h u C y n a k 19 7 x 1 9  
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*Zt. chr. f. Ch.* 92 cc 145

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*Zt. chr. f. Ch.* 192 ci 320

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C. n. t. r. i. b. u. t. i. o. n. s. o. n. v. a. c. u. l. r. s. u. g. e. r. y. c. l. n. l. n. d. e. x. p. r. i.  
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c. o. m. m. o. n. c. a. t. i. d. I. K. R. A. M. P. F. *De. t. che. Zt. chr. f. Ch.*  
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W. E. G. L. O. W. K. *Z. n. t. r. i. b. l. f. Ch.* 9 7 h 67

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S. u. r. f. a. c. e. t. e. i. o. n. f. s. e. r. u. m. V. The t. h. i. c. k. n. e. s. f. t. h. e.  
m. o. l. y. f. a. b. b. t. p. l. a. s. m. P. L. D. U. N. O. V. *J. Exp.*  
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R. I. S. A. V. C. S. *nd. A. C. D. A. N. I. E. L. I. A. N.* *Am. J. M. Sc.* 9 7  
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The d. u. l. t. y. f. i. t. h. a. t. e. n. a. t. u. of r. y. t. h. r. o. c. y. t. e. s. J.  
C. H. A. D. Y. P. O. U. L. O. S. *d. K. B. U. R. H. A. A. J. L. a. l. & C. l. n. Med.*  
19 7 x 99

The i. n. t. r. a. l. l. a. r. h. y. d. n. n. c. o. n. c. a. t. i. o. n. d. s. t. o. n. d. s.  
p. r. a. c. t. a. l. s. i. g. n. i. f. i. c. a. n. c. e. M. S. C. H. I. M. D. T. A. V. *Zt. h. f.*  
a. t. t. l. t. b. i. d. 927 xiv 5

T. h. t. h. q. of the c. o. l. o. r. i. m. t. r. d. t. r. m. a. t. n. f. l. t. i. c.  
c. i. d. n. the b. l. o. o. d. B. M. E. D. L. Z. t. r. i. b. l. f. C. y. n. a. h.  
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O. n. e. y. e. a. r. f. m. a. s. s. e. d. m. e. t. a. t. o. T. H. I. E. S. W. Z. i. c. h. r.  
f. G. e. b. u. r. t. s. h. u. G. y. n. a. e. k. 19 7 xci 37

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c. a. s. e. V. R. O. S. E. N. T. H. A. L. *J. Med. Soc. N. J. e. r. s.* 19  
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A. c. a. s. e. of h. e. m. p. h. i. l. a. w. i. t. h. g. n. l. g. i. c. a. l. c. h. a. t. C. S.  
W. I. L. I. A. M. S. O. N. a. n. d. C. L. B. E. R. N. *bu. g. Cl. n. V. Am.* 19  
xi 69

D. a. t. h. f. r. o. m. b. l. e. d. i. n. g. t. o. t. h. t. s. e. s. H. R. O. S. S. E. R.  
*Deutsch. Ztschr. f. Ch.* 192 cc 12

A. c. a. s. of c. u. t. e. m. y. l. b. l. a. t. l. e. u. k. e. m. i. a. w. i. t. h. l. u. k. e. m. i. c.  
c. o. u. r. s. e. w. i. t. h. a. u. t. p. s. y. f. i. n. d. C. S. W. I. L. I. A. M. S. O. N. a. n. d.  
C. L. B. E. R. N. *S. g. Cl. n. V. Am.* 9 7 i 5

L. e. f. d. i. n. g. in p. r. i. m. a. r. y. a. n. e. m. i. a. C. A. E. L. L. I. O. T. T.  
W. H. N. A. D. I. E. R. a. d. P. S. T. E. A. R. *S. g. Cl. n. V. Am.* 19  
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U. n. c. e. t. a. i. t. y. i. s. t. h. e. n. o. m. e. n. c. l. a. s. s. of b. l. o. o. d. g. r. o. u. p. s. a. n. d.  
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H. l. d. g. p. i. n. g. n. the s. t. u. d. y. of t. w. o. E. W. I. E. T. H. E. R. A. V.  
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B. l. o. o. d. g. e. l. t. i. n. a. t. i. o. n. d. t. p. r. a. c. t. i. c. a. l. v. l. u. e. E. K. A. P. T. E. V.  
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The e. f. f. e. c. t. f. i. b. l. d. t. r. a. n. s. f. u. s. i. o. n. c. a. t. a. i. n. s. t. e. p. t. o. c. e. t.  
i. n. f. e. c. t. i. o. n. s. F. C. N. E. R. R. S. o. t. h. M. J. 9 7 x 59

T. r. a. n. s. f. u. s. i. o. n. i. n. f. a. n. c. y. J. W. B. R. I. C. E. *South. M. J.*  
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f. i. b. l. d. 9 7 xiv 39

G. m. m. a. t. u. s. d. i. a. g. n. o. s. i. s. c. o. g. e. t. a. l. y. p. h. i. l. J. I. L. S.  
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n. e. r. v. P. K. L. E. I. N. S. C. H. M. I. D. T. *Zentralbl. f. Ch.* 1927 l

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o. m. D. S. Y. M. M. E. R. S. *Am. J. M. Sc.* 927 l 19 9

## SURGICAL TECHNIQUE

### Op. rativ. Surgery and Technique Po. toperative Treatment

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*Sch. 12 med. Wchnsch.* 9 7 l 9

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M. A. R. T. I. N. *J. t. h. e. s. t. Med.* 19 7 xxi 339

F. a. t. i. s. t. r. i. c. t. i. o. n. of t. h. h. d. a. p. o. s. i. t. i. o. n. f. o. r. t. h. e.  
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K. L. A. P. P. *K. l. o. c. l. e. a. d. W. E. B. E. R.* *Deut. che. Ztschr.*  
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A. s. e. p. s. d. r. i. n. g. o. p. e. r. a. t. i. o. n. s. P. C. O. N. A. F. *Zentralbl. f.*  
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l. u. g. r. a. f. i. s. J. H. O. S. I. E. R. *Am. J. Surg.* 19 7 ul 13

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n. a. l. u. g. e. y. R. C. C. O. R. E. Y. *Am. J. Surg.* 9 7 lxxv 148

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# International Abstract of Surgery

*Supplementary to*  
**Surgery, Gynecology and Obstetrics**

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# INTERNATIONAL ABSTRACT OF SURGERY

DECEMBER 1927

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### HEAD

Eggers T. Pneumocephalus and the Escape of Spinal Fluid from the Nose After Fracture of the Skull (Pneumocephalus and the Escape of Spinal Fluid from the Nose After Fracture of the Skull) (Schneider) 1927

Since the era of encephalography the picture of the air filled skull has been familiar. It is known that time collections of air in the skull were rarely observed in case of fracture of the base of the skull gunshot injuries and the like. In 1923 Schloffer published a collective review of the literature of such cases classifying them as cases of intracranial air cysts and case of pneumocephalus. In the former there is a collection of air within the brain substance between the cerebral surface and the vault of the cranium. In the latter the air accumulates within the spaces containing cerebrospinal fluid such as the ventricles. It reaches the ventricles either through the destroyed cerebral tissue or by the physiological route the subarachnoid space the foramen of Magendie or when there is injury of the floor of the third ventricle through the foramen of Monro.

Besides Schloffer's case a case of pneumocephalus following a fracture of the base of the skull even Krohn is described. The author reports also in detail the history of a case in which the right lateral ventricle became filled with air following a fracture of the skull.

The patient was a man 34 years of age who sustained a severe compound depression fracture in the region of the right frontal and parietal bones and fractures of the bones of the base of the skull. The right frontal sinus was opened and the cells of the right ethmoid bone were injured. The accident occurred when the patient while riding a motor cycle hit a truck and struck his head against an iron rail. It was followed by immediate loss of consciousness lasting for five days and paralysis of the optic and oculomotor nerves on the right side.

Under light anesthesia induced with narcochloral the wound was examined and a depressed periosteum covered piece of bone about the size of a 5 mark piece was raised. From this fracture four or five fissures radiated in a stellate manner and in places gaped as much as 3 mm. The periosteum was sutured the soft parts were temporarily tamponed and tetanus antitoxin was given.

Convalescence was fairly smooth. After five days the patient complained of severe headache but had clear orientation and no retrograde amnesia. On the twenty third day following the injury after the absence of symptoms for several days some coagulated blood escaped from the right side of the nose following forcible blowing of the nose. There was then a continuous dripping of a clear watery fluid—a nasal flow of spinal fluid. In a period of two hours about 25 c.c. escaped. When the patient was in the recumbent position the flow was somewhat less.

The roentgenographic findings were in addition to the fractures an air filled right lateral ventricle such as is seen in artificial pneumocephalon and light areas about the size of a dollar situated superficially over the right frontal region of the brain and on lateral exposure over the occipital portion of the brain. No clinical symptoms or complaints were referable to these findings.

The escape of spinal fluid ceased spontaneously after three weeks. The paralysis of the oculomotor nerve receded but the right eye remained blind. The escape of cerebrospinal fluid up to 200 c.c. per day was borne without noteworthy disturbances.

Six weeks after the first demonstration of air no air was found in the roentgenogram.

As severe disturbances are absent only when air takes the place of escaped fluid or destroyed brain tissue the author believes the air first entered at the time of the escape of spinal fluid. He concludes that the dura and the arachnoid membranes were opened inward by the injury of the right ethmoid cells but were closed off by coagula and adhesions. They





eye there was widening of the entire scotoma tree for both eyes

The author appends the histories of several interesting cases  
VIRGIL WESCOTT M D

## EAR

Lussmann F J and Bendove R A Chronic Otitis Media in the Tuberculous Local Ultraviolet Light Treatment *J A Orl* 13 97 1 153

In routine examinations the authors found chronic otitis media in about 15 per cent of all tuberculous patients. In about 80 per cent of these it was unilateral. Acid fast bacilli were found in only three cases in which the sputum revealed many tubercle bacilli over a long period of time and were generally discovered during an acute exacerbation of the pulmonary disease.

Tuberculous otitis media has an insidious and usually painless onset. It is associated with a profuse intermittent creamy and at times foetid and bloody discharge and causes rapid impairment of hearing.

The rational treatment is stimulation of a healthy local tissue growth. This is best accomplished by mild and slow radiation with ultraviolet light from either the solar rays or the quartz light. Excessive radiation may do more harm than good. The dosage should begin at one minute a day and increase up to about thirty minutes in from one to five months.

MANFORD R WALTZ M D

## NOSE AND SINUSES

Turne A L and Reynolds F E Nasal Mucous Polyp Intra-nasal Operation on the Ethmoidal Mucosa Cells Proliferation Leptomeningitis Death Autopsy *J L* 3 1 Orl 97 1 155

To determine the paths of infection to the brain meninges and venous blood sinuses from neighboring peripheral foci of infection the authors studied microscopically tissue taken at autopsy from a case in which death had been due to a purulent leptomeningitis following a bilateral ethmoid operation.

From these examinations they conclude that the ependyma is a dilatation of the perineurial lymphatic sheaths comparable to the dilatation of the lymph vessels associated with inflammatory foci in other parts of the body and that the leptomeningitis was due to a purulent infection of one of the dilated sheaths of an olfactory nerve which extended upward to the meninges.

MANFORD R WALTZ M D

Mackenty J E Nasal Pharyngeal Atresia *J L* 3 1 Orl 197

Mackenty first reviews the experience of others in the treatment of nasopharyngeal atresia.

The chief symptom of the condition is of course partial or complete obstruction of nasal breathing. Complete obstruction is rare. Nasopharyngeal atresia may be congenital or acquired. True congeni-

tal atresia is due to embryonic maldevelopment and not to inflammation. The acquired condition is caused by syphilis, trauma, diphtheria, tuberculosis and simple inflammation. The diagnosis is usually easy. Congenital atresia is successfully treated by division and division of the obstructing diaphragm. In acquired syphilitic cases the prognosis is poor. In case of extensive atresia those in which the whole pharynx is contracted to the center the prognosis is almost hopeless. Non-operative treatment consists of gradual dilatation. Incision with subsequent dilatation to maintain the opening has given poor results.

The author outlines two methods that have been successful in his cases. In the first adequate flaps from the posterior pharyngeal wall are doubled backward and upward upon themselves so that their raw surfaces are brought against the raw surface of the soft palate. All sutures are tied over lead disks and through small lead tubes. In the second procedure the attempt is made to produce a cleft in the soft palate as far up toward the hard palate as seems necessary for a permanent opening. The latter method is used when an adequate flap from the posterior pharyngeal wall cannot be obtained. These operations are followed by dilatation to the necessary degree. The methods are shown by illustrations.

W M PATON M D

Barnes H A Malignant Tumors of the Nasal Sinuses A Further Report on the Results of the Wide Open Operation Followed by Immediate Radiation *J A Orl* 13 927 vi 123

The author reports his results in the treatment of malignant sinus tumors by a combination of operation and immediate radiation. This procedure is based on Moore's lateral rhinotomy with the addition of cutting away of the soft tissues of the cheek to leave a wide permanent opening and immediate radiation to devitalize any particle of tumor that may remain.

The radiation treatment is given with 100 to 200-mgm tubes screened with 0.2 mm of platinum and 0.5 mm of brass or with 2 mm of lead. These are left in place for from twenty-four to forty-eight hours. All suspected sinuses are opened wide and thoroughly cleaned out. In every case of orbital involvement in which a clean removal of all gross tumor is possible the eyes are left. Repair of the facial opening may be accomplished with comparative safety after a year of absolute freedom from suspicious recurrences.

Tumors of the nasal sinuses include all varieties of carcinoma and sarcoma. The epidermoid carcinomata are the most malignant. The basal cell carcinomata are only mildly malignant and respond best to radiation. Only those cases are considered inoperable in which the presence of metastases is demonstrated.

The operative mortality is about 16 per cent. A cure is obtained in about 52 per cent of the cases.

MANFORD R WALTZ M D



Zimmermann L. M. The Relations of the Parathyroid Hormones to the Calcium Content and Coagulation of the Blood with Particular Reference to Jaundice (Ueber die Beziehung des Epithelkörperchenhormons zum Kalkgehalt des Blutes zur Blutgerinnung unter Berücksichtigung der Gelbsucht). *Alb. II. 11. 1927* 1: 716

The question of the favorable effect of calcium on the coagulation of the blood is of special interest to the surgeon in cases of jaundice. However, although eminent clinicians give a daily intravenous injection of calcium chloride solution for three days before operation as advised by Mayo, the theoretical effect of calcium on coagulation lacks a solid foundation and it has never been satisfactorily proved that the delay of coagulation in jaundice is due to a deficiency of calcium in the circulating blood. King and Steward succeeded in increasing the calcium content of the blood by about 20 per cent after ligation of the common duct, but such an increase can be obtained by the oral administration of calcium only in cases of tetany in which the calcium content of the blood is abnormally low. When calcium is administered intravenously its excretion begins immediately. Therapeutic doses are usually excreted within one or two hours at the most within four hours.

It is a surprising fact that when the calcium content of the blood is low, as in tetany, a hemorrhagic diathesis is not observed. Simpson and Rasmussen were unsuccessful in influencing coagulation by removing the parathyroid bodies. This is explained, however, by the work of Stuber and Focke, who found that coagulation is not dependent upon the presence of calcium; that calcium does not exert a specific action in coagulation; and that it acts only as a bivalent cation in sensitization and precipitation of the proteins.

In 1925 Collip devised a new method of increasing the calcium content of the blood with the aid of a hormone derived from the parathyroids. With this preparation he was able to increase the calcium content to several times the normal value even to a fatal hypercalcemia. Collip's results have received wide confirmation. An injection of this hormone mobilizes the calcium from the tissues, especially the bones.

Zimmermann produced a considerable increase of the calcium content of the blood with this hormone and then studied the effect of the hypercalcemia on coagulation. He used Stephan's modification of Forno's method. A specimen of blood taken from a vein of the arm was divided into two portions; one portion being then tested with regard to its calcium content and the other with regard to coagulation. Different tests on the same subject showed scarcely any difference in the coagulation. In experiments on dogs it was found that although the calcium content of the blood was markedly increased by the parathyroid hormone, the increase did not hasten coagulation.

The same findings were made in man. In spite of the increased calcium content, coagulation was not hastened.

The findings of these investigations indicate that the administration of calcium to increase the coagulability of the blood in cases of jaundice is futile.

Zimmermann concludes that the chemical effect of the calcium solution is probably to be attributed to its hypertonic character.

The question as to the part played by the ionized calcium in relation to the total calcium is not dealt with as it is supposed that these variations are of little practical importance. *Loewen (Z)*

Kendall E. C. The Physiology of the Thyroid Gland. *1926* 1: 1-117, 97, 1609

Two important investigations on the influence of the thyroid concern the basal metabolic rate and the protein metabolism. The isolation of thyroxine showed conclusively that the physiological activity of the thyroid is dependent upon this iodine-containing compound. One milligram of thyroxine produces an increase of about 3 per cent in the basal metabolic rate and the total amount of thyroxine functioning in the body is probably not more than from 10 to 12 mgm.

The most accurate test of the activity of the thyroid gland is the determination of the basal metabolic rate. A few milligrams of thyroxine exert an influence for five weeks. The minute amount of thyroxine is responsible for approximately 40 per cent of the total energy produced while the body is at rest. The basal metabolism test is an index of the activity of the thyroid gland, other factors being standard.

Following increased thyroid activity there must be an increase in pulse pressure, the volume flow of blood, the total absorption of oxygen and the amount of carbon dioxide given off. In the absence of sufficient carbohydrates there should be a breakdown of protein in order to sustain the high level of energy production.

The anemia sometimes found in cases of myxedema is relieved by thyroxine. Changes in the tendon reflexes have been noted. The conduction time of the nerves is decreased. The acuity of hearing shows an increase and the speed and manner of speech are improved. The growth of the long bones and the skull of newborn rats is influenced by thyroxine.

In exophthalmic goiter the suprarenal and the thymus are hypertrophied. Epinephrine mobilizes the active agent of the thyroid.

Investigation of the physiological action of the thyroid leads directly to a study of the processes of oxidation in the animal organism. The problem now lies with the chemist and the physicist, but they must closely correlate their endeavors with clinical observations. The medium in which thyroxine functions is complex and colloidal in nature.

From a study of simpler systems it can be shown that certain catalytic substances in turn require a



whether a really progressive case of Basedow's disease can be cured by this means alone

According to Curschmann von Mueller Forges and Kocher radiotherapy sometimes has a favorable effect especially in hyperthyroidism and cases of mild slowly progressing Basedow's disease Curschmann has obtained a cure in 60 per cent of such case with the treatment and Kocher has obtained a cure in 30 per cent Very careful measuring of the dosage is necessary The dosage for a given case cannot be determined in advance Unfavorable results such as hypothyroidism and myxedema occur according to Kocher their incidence is 10 per cent Sometimes irradiation fails entirely According to von Mueller it should be employed only when operation is out of the question Kocher has noted that when the patient is too ill for operation radiotherapy is no longer of benefit

TROMP (Z)

Barclay A E and Fellows F M Hyperthyroidism Treated by X Rays A Record of 300 Patients Case B T J R d l 9 7 x vii 2 2

The authors analyze the results of roentgen ray treatment in 300 consecutive unselected cases of hyperthyroidism The responsibility for the diagnosis rests upon the physician referring the patient The chief diagnostic aid is the history The metabolic rate is of less value The results in the cases reviewed were as follows

|                                | Number | P    |
|--------------------------------|--------|------|
| Cure or good functional result | 190    | 63.3 |
| Improvement                    | 75     | 25   |
| No improvement                 | 15     | 5    |
| Unknown                        | 20     | 6.6  |

The first favorable sign is usually the cessation of nervousness This is followed soon by a return of energy and strength The cardiac symptoms like the others improve slowly The pulse rate decreases by the end of the fourth week There is a decided gain in weight the average being 17 lb Goiter and exophthalmos are amenable in their response to treatment but both persist long after the other symptoms have been relieved

In the cases reviewed the treatment consisted in the use of X rays of medium energy length One third of a skin erythema of filtered irradiation as given twice a week Some improvement is usually noted in three weeks The interval between the treatments were then lengthened The smallest number of treatments resulting in a cure is six The average number was about twenty Slight retentions were common If the patient ties to lose too much during a period of remission a serious relapse may occur Relapses are overcome by increasing the frequency of the treatments and by rest The patients were usually on the way to recovery after from six to eight weeks

The authors conclude that while slow the method is safe in competent hands and its results are permanent

CHAS. H. H. JACKMAN

Elliott C A The Control of Hyperthyroidism by Thyroidectomy Results in 100 Cases J Am M Ass 1927 lxxix 519

Elliott reports the findings of re examination of 100 patients who were operated upon for hyperthyroidism in a general hospital Many of these patients had been severely toxic Sixty seven were operated upon from six months to two years previously and thirty three from two to six years previously Sixty one of the goiters were exophthalmic thirty two were adenomatous and six were of an indeterminate type Eighty three of the patients had been treated previously—forty four with iodine twenty by radiation and nineteen by operation Fifty nine had had hyperthyroidism for a year or less and forty one for from one to thirteen years

All were given bed rest before the operation Sixty nine received preliminary iodine medication In fifty of the fifty five cases for which the records are complete there was definite improvement in four slight improvement and in one no improvement The general improvement paralleled the drop in the metabolic rate

All of the patients resumed their former occupations At the time of re examination seventy considered themselves perfectly well Ninety one had a normal metabolic rate Residual organ injury was recorded in fifty two cases In forty one it was due to the hyperthyroidism in five to the operation and in six to other causes Four patients had a mild persistent hyperthyroidism and five a subnormal metabolic rate

Laryngeal injury was noted in nine patients In six it was temporary and in three permanent Postoperative tetany developed in four cases and in one case it persisted in slight degree

Fifty patients had had two operations and one had had four Four of these now have a metabolic rate within the normal limits one has a rate below normal and one has a rate above normal

Twenty three patients required three months for recovery twenty one six months and fourteen from one to three years Twenty six patients have slight disability

The author draws the conclusion that hyperthyroidism can be controlled by subtotal thyroidectomy and that the operation should be performed early

Recurrences develop only when too much thyroid tissue is left

F S MODERN M D

Roger J Acute Postoperative Toxæmia of Hyperthyroidism M J & R 19 7 cx vi 66

Two types of toxæmia may follow operation for hyperthyroidism The more common type begins immediately with a rapid pulse fever and restlessness The less common type comes on over a period of days with a gradual rise in the pulse rate and the temperature increasing stupor and at times pharyngeal paralysis

catalyst for their proper activation. The mechanism is similar to a system of gears which are intermeshed. A chemical approach to this problem can establish facts which have a definite bearing on the problems of oxidation in the animal organism and on hyperthyroidism and hypothyroidism.

Guthrie D. The Present Day Approach to the Patient with Hyperthyroidism. *A. J. S. R.* 1927; 1: 150.

Goutier may be classified as exophthalmic and endemic the endemic as diffuse colloid and adenomatous and the adenomatous as quiescent and hyperfunctioning. In endemic goiter there is a deficiency of iodine resulting in subnormal delivery of thyroxin and hypothyroidism. The frequency of diffuse colloid goiter at puberty and in pregnancy seems due to stimulation of a gland functionally damaged by exhaustion of thyroxin. The intravenous administration of thyroxin or thyroid extract will cause shrinkage of the gland as long as the treatment is continued. Medical treatment is advisable before surgery except in the case of patients over 25 years of age in whom diffuse colloid goiters often contain small adenomata which may be activated by iodine.

Adenomata may be diffuse or encapsulated and may or may not contain colloid. The facts that they may become malignant or sublethal and that in time the majority will hyperfunction are strong arguments for surgical removal. After about eighteen years most adenomata develop hyperfunction. The onset is insidious and the course progressive, resulting in cardiac and renal damage. The results of surgery in these cases are immediate. The author believes that iodine aggravates hyperfunctioning adenomata.

Exophthalmic goiter occurs earlier in life, has a more rapid course and is associated with ocular changes, peculiar nervous phenomena and a tendency toward crises in addition to the symptoms of hyperthyroidism. Lugol's solution is advocated for exophthalmic goiter on the basis of the theory that under intense stimulation the thyroid is delivering an incompletely iodized thyroxin. The use of Lugol's solution has greatly reduced the mortality and morbidity of the disease. Ligation, though of value in critical cases, is seldom necessary. The author stresses the importance of keeping the patient informed of the time at which the operation is to be performed.

Patients with postoperative hyperthyroidism should have absolute quiet, morphine and alkalies as indicated, fluids administered freely. Lugol's solution for several weeks and capsules if necessary for fever. Digitalis indicated only for decompensation. If hemorrhage occurs and there are alarming pressure symptoms the clot must be expressed immediately.

Except in critical cases and those of older patients it is better not to limit activity long after the operation. B. W. CLARK, JR., M.D.

Endrién, Kocher, von Muelle, Curschmann, Bauer and Porges. The Treatment of Hyperthyroidism. (D. Behndlung des Hyperthyroidismus). *Med. Klin.* 1926; 21: 115. 0, 1927.

A questionnaire regarding the indications and results of internal surgical and irradiation therapy in hyperthyroidism was answered by surgeons Enderlein and Kocher and by internists von Mueller, Curschmann, Bauer and Porges.

All agreed that climatic medicinal organotherapy and specific measures are only aids of limited value which cannot be depended upon alone in advanced Basedow's disease. A permanent cure of hyperthyroidism is obtained by exclusively internal treatment in only a small percentage of cases. According to Kocher, some of these cases become cured spontaneously. Usually improvement is followed by remissions.

It was agreed also that in fully developed Basedow's disease a complete cure is brought about most quickly by surgery and that when an accepted form of internal treatment does not cause improvement operation should be performed as soon as possible. Only Porges maintains that internal treatment is more certain though requiring a longer period of time (two years). Bauer pointed out that in cases treated by internal methods the mortality is somewhat higher than the mortality in cases treated surgically.

The influence of climate was regarded skeptically by all. More important is the effect of complete bodily and mental tranquility. All of those answering the questionnaire consider a stay at an altitude of from 1,000 to 2,400 meters as advantageous. Enderlein recommends it as preoperative preparation. Porges recommends a stay at the seashore for the same purpose, but Curschmann warns against the latter. Climatotherapy alone is regarded as sufficient only in mild hyperthyroidism; most patients have a recurrence of the symptoms after their return home.

Of the various medicaments used, Curschmann recommends arsenic and phosphorus (particularly in the form of recresal) as a supplement to other measures. Irgel recommends potassium. After from one to two years of its intermittent administration he has observed the disappearance of all active symptoms except the exophthalmos. None of those answering the questionnaire considered a cure essential for hyperthyroidism. Curschmann could reserve it for the clinical treatment of special cases. Bauer uses it with knife in hand. Bauer and Enderlein recommend iodine in the form of Lugol's solution as used by Plummer for four days before and four days after operation.

No definite results have been noted from organotherapy with thymus gland preparations or insulin or the specific medicaments rotagen and a-thyroidin.

Curschmann considers a diet free from meat as of little value but recommends Blum's diet.

roid in juveniles is of the utmost importance and that this problem should be studied by special research with particular regard to improvement of the iodine supply for the population

2 It is desirable that research be conducted as soon as possible on the condition of the capillary system and its relation to enlargements of the thyroid and the forms of idiocy and disturbances of growth associated with them

3 The question of the iodine supply of man, animals and plants and the fate of iodine in these respective organisms should be further investigated in co-operation with representatives of agriculture and industry

4 Until such time as the results of this research are available iodine prophylaxis must be further studied and conducted on a small scale

5 The State Health Council takes notice of the reports and principles presented. Although it refrains from making a final decision regarding them at the present time it recommends to the Ministry of Welfare that these reports and principles be taken into consideration in dealing with the problem

JASTRAM (Z)

Horne W J. An Epithelial Demonstration of Chronic Hypertrophic Laryngitis with Some Observations on the Treatment. *P. C. R. V. Soc. Med. Lond.* 1917; 63.

In the normal larynx a line formed by a fold of mucous membrane starts from behind the vocal

process of each cord and takes a crescentic course passing downward and forward immediately below the process and parallel with the middle third of the cord

This line is most marked at the vocal process and more apparent in males than females

Pachydermia laryngis is more common in males than females. The mucous membrane is most intimately adherent immediately above and below the fold described. In pachydermia laryngis the changes in the region of the vocal process are symmetrical and bilateral. A warty growth appearing in the region of the vocal processes in the later stages of the condition is not strictly a neoplasm but only a localized hyperplasia or exaggeration of a pre-existent structure, viz the fold or line of mucous membrane referred to. The adherence of the mucous membrane immediately above and below causes the formation of a furrow or depression on each cord.

The production of the voice is not interfered with because by the time the vocal condition about the vocal processes is established the cords are no longer on the same plane. The alteration in the plane of the cords may be observed clinically.

The condition never becomes malignant. Operative treatment has its limitations. Pachydermia laryngis is part of a constitutional condition. It is more important to treat the body as a whole than to treat only the larynx.

HOWARD A. MCKNIGHT, M.D.

The intravenous injection of 20 c cm. of a 50 per cent glucose solution usually produces improvement in either type reducing the restlessness and vomiting. This dose can be administered two or three times or as often as once in twelve hours. For the control of restlessness bromides are preferable to morphine.

The thyroid is closely associated with the metabolism of sugar. Thyroid feeding in diabetes makes the condition worse. In hyperthyroidism associated with glycosuria thyroidectomy is usually followed by subsidence of the glycosuria. The administration of thyroid residue subcutaneously or intravenously not only increases the blood sugar but apparently stimulates the vagus rather than the sympathetic terminals and does not accelerate the pulse. Of the thyroid materials thionin alone does not have this effect.

The observation that after death from hyperthyroidism the gland is almost a solid mass of firm, gummy and disintegrating epithelium with alveoli devoid of colloid and filled with cells and cellular debris suggested to the author that in these cases the secretion though in excess is altered in quality and is incapable of performing its normal function at least in the nervous system. On the basis of this theory he administers thyroid in cases of acute toxæmia. This treatment is followed by slowing of the pulse and great improvement in the restlessness and semi-coma.

Two cases of toxæmia in which thyroid residue caused immediate marked improvement are reported. Rogers gives from 0.1 to 30 minims subcutaneously every two hours whenever the pulse reaches 160. In the slowly developing toxæmia nothing seems so much as it.

Theoretically the deteriorated thyroid product of hyperthyroidism plays its rôle in sugar abnormality imperfectly and the strain of operation exhausts the small sugar reserve in the brain and causes the thyroid to fail temporarily. The administration of thyroid extract seems capable of bridging this gap if it is not too wide.

BURTON CLARK, JR., M.D.

Sommerfeld and Ochsner Measures That Should Be Adopted Against the Spread of Endemic Goiter with Special Reference to Expenses Gained in Prophylactic Treatment with Iodine

Ueber die geographische Verbreitung der Strömung in der Schilddrüse und die Bedeutung der Jodmangelkrankheiten für die Pathologie der Schilddrüse

Die Jodmangelkrankheiten in der Schweiz

Die Jodmangelkrankheiten in der Schweiz

In the session of the State Health Council of June 14, 1926 Sommerfeld of Glatz reported that the disease had been a considerable increase of goiter since the war. He reviewed the physiology of the thyroid gland, the administration of iodine in the prophylaxis of goiter and the results obtained from the use of the Kollasol (full salt) in Switzerland, Austria, Bavaria, Italy, England and Württemberg. In the Fannus region, Waldenburg, Woelfelsgrund and Glatz iodine medication has been found beneficial.

The results of the administration of accurate doses of iodine to school children have so far been favorable. As yet however nothing certain is known as to the permanent results of this or the use of full salt.

Sommerfeld then discussed the occurrence of iodine in nature (investigations of Chatain and Fellenberg) the relation between the incidence of goiter and the environment, to the incidence of goiter and the findings of Eggenberger as to the sources of iodine for man (viz. food, air, water and sodium chloride). Recent investigations yielded additional support to the theory of iodine starvation as a cause of goiter.

The enlargement of the thyroid gland is to be regarded as an adaptation of the body to a deficiency of iodine in the food, the purpose of which is to improve the fixation and utilization of the scant quantities of iodine that are received. Adults with degenerative changes in the thyroid are more sensitive to iodine than young persons. Sommerfeld recommends increasing the iodine content of foodstuffs. This can be done by the use of Chatain as fertilizer. The lack of Chatain in German agriculture since 1914 has meant the withdrawal of 65 tons of iodine annually, an amount corresponding to the annual iodine requirements of the whole of a half million people.

WERNER of Kassel reported an increase in the incidence of goiter in more than half of the districts of Kassel county. In investigations with the capillary microscopic method of Mueller and Weiss he found in the cutaneous capillary system of true hyperthyroidism the peculiar capillary changes (a capillaries, neocapillaries and their several stunted subnecroses) that were first noted by Jaensch in 1921. In examinations of a large number of school children by capillary microscopy Hoepfner found that every type of injury from goiter can be easily recognized by this method. Capillary microscopy permits also an accurate differential diagnosis between the disease of cretinism and shock due to other causes. The former can be improved by iodine whereas the latter cannot.

In the discussion in which GERSBACH, KOLLE, JAENSCH, HOEPFNER, ZEDER, LANTZ, BLINDE and GÖRTZEL also took part, LEWIS reported on the iodine binding capacity of the thyroid (0.002 gm. of iodine to 1 gm. of dry thyroid substance) and expressed doubt as to the advisability of the general use of the full salt because of the danger of iodine accumulation. He believes that the administration of a few milligrams of iodine for a period of two weeks is sufficient to maintain the normal iodine level.

JAENSCH emphasized the importance of adapting the dose of iodine to the degree of capillary inhibition.

The following resolutions were drawn up: 1. The State Health Council is convinced that official notice of the fight against endemic goiter and of the prevention of enlargements of the thyroid.



Two operations were performed the right side being treated first. Considerable difficulty was experienced because of the large amount of scar tissue present. Only 1 1/4 in. of the recurrent laryngeal nerve was available for anastomosis and the descending noni nerve was even more embedded. The phrenic nerve was divided through less than half its diameter and split proximally the split portion then being used for end-to-end anastomosis with the freed portion of the recurrent laryngeal nerve.

The second operation was even more difficult as the amount of scar tissue on the left side was greater. An end-to-end anastomosis of the recurrent laryngeal nerve to the phrenic nerve was done but some degree of tension was unavoidable.

Gradual improvement was apparent throughout the period of observation. The paralysis of the diaphragm noted after each stage completely disappeared. The left vocal cord which improved in abduction for a time has now no power of abduction a result attributed by the authors to the tension on the anastomosis. The right cord has strong adduction and abduction to one third the normal. The voice is now fairly good being at times quite strong but a supposedly functional element prevents a consistently good tone. The final results of the operations are improvement in the voice the removal of the danger of sudden death from suffocation and the avoidance of a permanent tracheotomy tube.

E. S. PLATT, M.D.

### SPINAL CORD AND ITS COVERINGS

Grosz K. The Indications and Results of the Surgical Treatment of Diseases of the Spinal Cord. (I dikato enau d'gebnisse der h'gischen Behandlung n R'ck'emark ankeht.) II med. W'ch. k. 1927 LXXVII 3 4 348 357 4 9.

The chief indication for surgical treatment in the case of the spinal cord is compression. The earliest and most constant signs of compression are neuralgic pains due to irritation of the nerve roots. These vary markedly and do not always indicate the character and localization of the condition. In the diagnosis of tumor of the spinal cord examination of the spinal fluid obtained by lumbar puncture is of great value.

First in importance is the increase in the albumin content. Next is the compression syndrome of Froin (jelly like consistency of the fluid with xanthochromia). The latter is not absolutely pathognomonic of tumor but is generally a sign of an obstruction to the circulation of the fluid. Myelography should be employed when the clinical diagnosis and the results of spinal puncture still leave doubt as to the nature and level of the condition causing the symptoms.

The results of the operative treatment of spinal cord tumors have been reported by von Eiselsberg as good and with the progress that is being made in early diagnosis are certain to be improved still further.

Besides tumor of the spinal cord persistent painful conditions are being treated by operation more frequently in recent years but the problem of the conduction paths of sensation has not yet been entirely solved. The pathogenesis of the gastric crises of tabes dorsalis is also unknown. Resection of the posterior roots of the spinal nerves by Foerster's method has been the method employed most frequently. For good results Foerster's rules must be followed closely. The paravertebral injections of Laeven have not met expectations in the crises of tabes. Section of the rami communicantes of the sympathetic nerve recommended by von Gaze requires further testing. The most radical method is chordotomy. Foerster recommends this procedure for gastric tabes. Also in other painful conditions and in spastic conditions it is a relatively safe method as it is not followed by permanent disturbances of sensation. It causes only a more or less complete severance of the pain conducting fibers. Because of the patient's wretchedness even a temporary result is a goal worthy of attainment. As other methods at present do not give good results further attempts with chordotomy are justified. DREGG (Z).

### SYMPATHETIC NERVES

Langer H. Roentgen Rays and the Autonomic Nervous System. *Am J R'genol* 927 XVII 137.

In experiments on cats the author was able to demonstrate by the radiation of isolated sympathetic nerves in the neck and of the vagus that the roentgen rays exert a paralyzing effect on the sympathetic or para-sympathetics. No organic changes could be demonstrated. The paralyzing action can not be demonstrated in radiation treatments because both branches of the autonomic nervous system are influenced. As long as these two systems are in normal balance roentgen or radium effects will not be biologically demonstrable but as soon as they are out of balance the over-irritated part will be more influenced by the radiation than the other part and this is demonstrable both biologically and clinically.

The distant and wrongly called stimulating effects of the roentgen rays are both best explained by their action on the autonomic nervous system. The author attributes the good results obtained by radiation in thromboangiitis obliterans, angina pectoris, vasomotoria and the trophic and circulatory disturbances of poliomyelitis to the depressing action of the treatment on an over-irritated part of the autonomic nervous system and the bringing into balance of its two functions. Benefits that have generally been attributed to stimulation as in asthma, exophthalmic goiter, oliguria in chronic glomerular nephritis and peptic ulcers have the same basis.

Some irritation causes an over-irritation of one of the two autonomic nervous systems. A change in chemical consistence results and leads to pathological

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

Sendulski) I The Surgical Anatomy of the Facial Nerve Canal (Dr. Ch. R. G. S. H. Anat. med. s. C. N. S. I. C. I. S.) Tr. dy. S. S. A. k. k. j. s. i. n. n. l. a. s. l. d. o. a. l. k. c. i. n. t. t. l. 1961

This report is based on a study of 80 temporal bones from subjects of different ages ranging from embryos to persons 100 years old. In addition 200 skulls from the Anatomical Institute of Rostov on the Don and a few clinical cases from the Surgical Faculty Clinic were examined. The topography of the facial nerve canal was studied in gross and microscopic sections.

The measurements of twenty three specimens are given. The author shows that the length of the canal varies between 4 and 29 mm and does not depend upon sex or the side of the body. The chief factors are age and the size of the temporal bone. Up to the end of the second decade of life the increase in the length of the canal occurs chiefly at the expense of its peripheral portion.

The first portion—the labyrinthine section—is in close relationship to the labyrinth. Therefore suppurative processes in the internal ear are occasionally accompanied by involvement of the facial nerve. Theoretically the penetration of infection from the tympanic cavity into the cranial cavity through the portion of the canal lying within the petrous portion of the temporal bone is possible. The length of this part of the canal is 3 or 4 mm (twenty six measurements).

The second portion—the tympanic section—has a length of 0 to 1 mm. Peculiarities in the anatomical structure and topography of this portion of the canal such as (1) the presence of a very thin wall dividing the nerve canal from the tympanic cavity (2) the presence of dehiscences in which the mucosa of the tympanic cavity lies immediately next to the perineurium of the facial nerve (3) the presence of the foramen ovale of an opening through which pass the anastomotic branches of the blood vessels of the facial nerve canal and the tympanic cavity (4) an advanced position of the canal in the tympanic cavity (5) the association of the facial nerve canal with the cochlear process and (6) the association of the facial nerve canal with the labyrinth appear to be important factors in the relationship of the facial nerve canal and its contents to the processes which occur in the tympanic cavity.

The author reports a case of paralysis of the facial nerve and irritation of the vestibular apparatus caused by increased pressure within the facial nerve canal and the labyrinth. The evacuation of a hæm-

orrhagic fluid from the tympanic cavity by paracentesis led to rapid and complete cure.

From an examination of 100 horizontal sections of macerated temporal bones the author came to the following conclusions:

1. In the region of the tympanic sulcus at the level of the middle of the posterior wall the surgeon must operate with as much care as if the distance between it and the facial nerve canal were only 1 mm.

2. Since to a depth of 3 mm the facial nerve canal may be more superficial than the tympanic sulcus it is dangerous to approach with the chisel closer than 3 mm.

3. The length of the posterior lower angle of the external auditory canal cannot be regarded as an exact point of orientation with regard to the position of the stylomastoid foramen but as a rule it lies at the level of the center.

The third portion of the facial nerve canal—the mastoid portion—extends from the pyramidal process up to the stylomastoid foramen. At maturity its length is from 11.5 to 15 mm with an average of 13 to 13.5 mm (fifty sections in twenty six of which the bones were taken from persons 21 years of age and older). The depth of the antrum depends upon the age and the characteristics of the mastoid process and measures on an average 10 mm. As the trephining of the posterior wall of the external auditory canal is begun at its upper half it is best in order to prevent penetration of the tympanic cavity not to approach closer to the drum membrane than about 5 mm as the shortest length of the posterior wall of the auditory canal measures 9 mm.

After analyzing the methods of radical operation used by Stacke and Zaufal and also some atypical methods the author states that in his opinion the method of Stacke is the simplest and technically the easiest. Of the methods of exposing the bulb of the jugular vein he gives preference to the operation of Grunert because in order to decrease the danger of injuring the facial nerve canal in its lower portion it is necessary to keep close to the wall of the jugular foramen.

K. I. BIA. OV. (2)

Barne E. B. and B. Hance St. C. Anastomosis of the Recurrent Laryngeal and Phrenic Nerves. Some Recovery of Function. B. J. M. J. 1971, 11, 58.

This is the report of a case of complete traumatic division of both recurrent laryngeal nerves during a thyroidectomy. The patient was first seen by the authors in May 1936 seven months after the operation. She was found to have complete paralysis of both vocal cords associated with stridor and repeated attacks of cyanosis and dyspnea. She spoke only in a whisper.

# SURGERY OF THE CHEST

## TRACHEA LUNGS AND PLEURA

Mastics E A Spittler F A and McNamee E P  
Postoperative Pulmonary Atelectasis 1 ch  
S 8 19 7 XV 155

The authors trace pulmonary atelectasis from its first description in 1890 by Pasteur who reported thirty four cases of postdiphtheritic massive collapse of the lung with paralysis of the diaphragm to our present conception of the condition particularly as a postoperative complication. The following four theories have been advanced as to its cause

1 Collapse of the lung may be secondary to paralysis of the diaphragm. Probably also the accessory respiratory muscles are affected with resulting collapse of the chest wall.

2 It may be the result of diaphragmatic immobilization associated with bronchial obstruction the alveolar air being absorbed into the circulating blood.

3 It may be secondary to inflammation affecting the retroperitoneal portion of the diaphragm with resulting disturbance of function of this portion of the diaphragm and the function of the respiratory muscles on the involved side.

4 It may be due to vagal stimulation with vaso motor reaction and bronchiole constriction.

The authors accept the second of these theories and cite several points in favor of it. In their opinion the sequence of events is (1) diaphragmatic fatigue (2) diaphragmatic inhibition and (3) bronchial obstruction due to decreased aeration and the accumulation of plugs of thick mucus.

Partial or massive atelectasis may follow any type of operation on the abdomen and any type of anesthesia. It has been reported also as a sequel to wounds elsewhere than in the abdomen and to infectious diseases. Age is not a factor but males develop the complication three times as frequently as females.

The right lower lobe is involved most often. Next in decreasing frequency of involvement are the right lower and middle lobes, the left lower lobe, the right upper lobe and the left upper lobe.

The onset may be sudden or gradual. It is characterized by cyanosis, dyspnea, pain or tightness in the chest, a sudden increase in the temperature, pulse and respiration, profuse diaphoresis, cough, asymmetry of the chest and displacement of the heart and trachea toward the affected side.

The affected side is smaller and moves but little and the cardiac impulse is displaced toward that side. Over the affected lung area there is dullness with suppressed breath sounds and diminished vocal and tactile fremitus and no râles. Later these signs change.

The authors divide the cases into the fulminant, moderate, latent and evanescent types. The condition may terminate by crisis, lysis or complication. The most common complication is bronchopneumonia. The differential diagnosis is to be made from pulmonary infarction, acute dilatation of the heart, pleurisy, subphrenic abscess, pneumothorax and diaphragmatic hernia. Roentgen ray evidence is characteristic and positive.

The treatment consists in the removal of mucous plugs by the bronchoscope, attempts to inflate and aerate the lungs by deep inspiration and possibly the induction of artificial pneumothorax in the affected side.

The prognosis is favorable in cases without complication.

Fifty cases are reviewed. The authors believe that 70 per cent of postoperative pulmonary complications are accounted for by atelectasis or collapse.

FRANK B BERRY M D

Zaaijer The Treatment of Bronchiectasis (Br  
h kta c Behandi g) 51 Tag d d itsch Ge f  
Ch Be hn 927

The exact localization of bronchiectasis was first made possible by the lipiodol method of Forrester. The anatomical nature of bronchiectases is as yet not sufficiently known. In the treatment this unknown factor must be taken into consideration. Whenever possible the treatment must be limited to the diseased portion of the lung, the normal portions being left undisturbed. Those operations which are associated with the annoying complication of pulmonary fistula should be undertaken only as a very last resort. The requirements are best met by the following series of operations:

1 Exeresis of the phrenic nerve. According to French reports this procedure offers the possibility of a permanent clinical cure.

Thoracoplasty with extensive resection of the ribs over the diseased area and removal of the perosteum and the intercostal musculature. Several permanent clinical cures have been obtained by this treatment.

3 Liberation of the diseased lobe from its adhesions followed by intrapleural tamponade close about and upon the bronchiectatic lobe. This is the most successful collapse therapy. If it fails operations associated with bronchial fistulae can no longer be avoided.

4 Resection or amputation of the diseased lobe by elastic ligation of the stumps. Following the previously mentioned intrapleural tamponade this operation becomes a trivial matter. The portions of the lung which lie peripheral to the ligation drop off of their own accord.

function and form. The cell in this stage loses contact with its regulator and cancer formation sets in. Proper radiation will often reduce the over-irritated nerve fibers to normal function with a return to normal metabolism and form. Prolonged roentgen treatment finally paralyzes both autonomic nervous systems and causes irreparable cell damage. Cancer then grows wild.

This conception of cancer has led to the following technique in the treatment:

1. Destruction of the tumor by electrocoagulation and dehydration whenever possible.

2. Local radiation for its direct action on the cancer cell and its indirect action through the over-irritated nerve fibers.

3. The administration of three-fourths of an erythema dose of roentgen rays to the entire area in which are situated the paravertebral ganglia which lead to the diseased part of the body.

CHARLES H. HE COCK, M.D.

Bresot, E. Result in Twenty Four Cases of Per-arterial Sympathectomy (*Résultats de vingt quatre cas de sympathectomie périténelle*). *Rev. d'chi. P. r.* 1927, xlv, 5.

The author reports twenty-seven sympathectomies performed on twenty-four patients by the method of Leriche. Nineteen were humeral and eight were femoral. The operation is considered to be without danger as injury to the artery occurred only

once. In every case the syndrome emphasized by Leriche—marked contraction of the artery appearing immediately and advancing with the dearterialization—was strikingly evident. The vessel shrank to the caliber of a thread, appeared empty and did not pulsate. In from three to six days a secondary vasodilatation succeeded the constriction.

Of three cases of true Raynaud's disease, one was completely controlled over a period of sixteen months and one was cured almost completely for three years. In the third, a recurrence developed forty-seven days after the operation.

In six cases of asphyxial disturbances of unknown origin which the author believes was a typical Raynaud's disease, there were two cures which were followed for seven and fifteen months, two definite ameliorations which were followed for five and eight months, one slight improvement and one failure.

In callous non-syphilitic ulcers which had resisted all other forms of therapy, the base of the ulcers rapidly cleared and became covered with healthy pink granulations and cicatrization and epidermization progressed quickly, leaving a solid flexible scar.

In two cases of delayed union of fractures, sympathectomy led to rapid and satisfactory healing.

In two cases of painful amputation stumps in which the hyperaesthesia was unaccompanied by trophic disturbances, the free trivalent

LEO M. ZIMMERMAN, M.D.

the operation is applicable to many cases which without it would be hopeless.

Even though the procedure was reserved for the most refractory cases and poor surgical risks the mortality in forty five cases was only 6.6 per cent—one death from hemorrhage and two deaths from air embolism. In any large number of cases of this type the mortality will be high as in about 10 per cent there is associated carcinoma of the lung and in another 10 per cent cerebral suppuration ensues. Thirty one (69 per cent) of the author's patients are now free from symptoms.

Whittemore states that all methods of treating chronic bronchopulmonary infection with bronchial dilatation other than radical removal are only palliative. For cases in which more than one lobe of the lung is involved a graded thoracoplasty is the best procedure but when the disease is limited to one lobe this treatment is only palliative. Amputation of a lobe within the pleural cavity has a high mortality only one of six patients so treated left the hospital alive. When a limited amount of lung is to be removed as in chronic abscess near the periphery cauterly lobectomy is best.

In Whittemore's cases the pleural cavity is opened and the diseased lobe examined to determine the extent of the process and of the adhesions. If the adhesions are firm or extensive it may be unwise to perform a lobectomy. If a lobectomy is decided upon sections of a sufficient number of ribs are removed to permit delivery of the diseased part of the lobe from the pleural cavity after division of the adhesions and the pulmonary ligament. The lung is then firmly sutured to the muscles of the chest wall a large gauze sponge is placed beneath the lobe to aid in holding it and a No. 20 French catheter is inserted to the root of the lung to collect the pleural secretion. The wound is then closed as tightly as possible.

This operation is accompanied by very little shock. In about ten days the lobe becomes necrotic. First a dry gangrene is established and then there is a profuse foul discharge. After four or five weeks the whole area sloughs off leaving a clean granulating surface with bronchial fistulae.

Fifteen cases in which this operation was performed are reported. In the two in which a complete recovery resulted the fistulae closed spontaneously. Whittemore concludes that by his method lobectomy can be completed in one stage without excruciating pain.

MARTIN

Lilienthal H. Mechanical Principles of the  
Operative Treatment of Pulmonary Tuberculosis  
1917 1 100  
Late J. L. Operations Aided in the Treatment  
of Pulmonary Tuberculosis 1 154

Lilienthal states that the two important mechanical objects of the surgery of pulmonary tuberculosis are rest and drainage. Rest may be temporary or permanent and may vary in degree.

In some cases complete abolishment of lung function is necessary.

Of the extrathoracic methods of treatment those relating to the phrenic nerve are described.

Operations upon the thorax itself are done to cause rest or drainage. The obliteration of pulmonary cavities and of diseased areas of the pleural sac is described.

Pulmonary collapse and compression are aided by the suction power of negative intrapleural pneumatic tension. This negative pressure cannot operate when there is an air passage through the chest wall or when there are large intrapulmonary cavities opening directly to the external air through a large bronchus.

Methods of operation are described and the mechanical principles upon which they are founded are discussed.

LATES states that the purpose of his article is to show

1. Why simple operations performed promptly in proper sequence and in conjunction with other measures will provide all patients not already fatally affected with every opportunity for undelayed recovery or arrest or retardation of their disease whatever its stage.

Why neither surgical nor non surgical measures alone can meet the therapeutic requirements.

3. How beneficial operations have been performed without imposing intolerable burdens upon the weakened patients and with only the limited dangers of wound infection, hemorrhage, thrombosis, embolism and pneumothorax.

In the cases of twelve patients twenty nine rib resections with the more or less complete removal of from four to twelve ribs were done. All of these patients are prepared by preliminary paralysis of the diaphragm and some of them by blood transfusion. None has died. Two were benefited only temporarily. Two are apparently cured and their blood is normal. The others are improving and may require no further operation.

Lates believes that radical resection of ribs perhaps including the intercostal muscles can be done virtually without danger if the operation is adapted to the requirements of the particular patient and is performed promptly after the patient has been properly prepared. Many patients thus treated who would otherwise be confined to sanatoria will recover sufficiently to lead useful lives without endangering their associates. The following conclusions are drawn:

1. Improvement of methods of treatment is necessary if every patient is to be given a full opportunity for a delayed recovery from pleuropulmonary tuberculosis or for prompt arrest or retardation of the progress of the disease.

The basic obligation of treatment which is the promotion of healing of the lesions with the least cicatrization can be met by improving the quality and increasing the quantity of blood delivered to the affected lungs restricting the excursions of the

The last two methods were shown by photographs and roentgenograms

Each of this series of operations may result in a clinical cure and each prepares for the following one and renders it less dangerous

In conclusion Zaaijer refers to the great advantage of nitrous oxide anesthesia in surgery of the lungs. He showed a picture of the latest model of the Zaaijer-Weissenbach nitrous oxide anesthesia apparatus used at Leiden

In the discussion of this paper HENLE (Dortmund) referred to Beck's report of an explosion which occurred during the use of the Paquelin cautery with the oxygen ether apparatus. Nitrous oxide is safer as it does not form an explosive mixture with oxygen

SAUERBRUCH stated that the operative methods recommended by Zaaijer lead to a cure in only a limited number of cases. In the majority it is necessary to resect the lower lobe. *STETINER (Z)*

Halloway J W, Shueter S A and Cutler E C  
The Relation of Immunity to the Experimental Production of Abscess of the Lung. *Am Surg* 1927 LXXI: 165

The authors report a small series of experiments upon dogs concerning the part that immunity may play in the production of embolic abscesses of the lung. These studies dealt first with the general immunity of the animals and second with the virulence and physical properties of the infected emboli. Blood clots made both *in vitro* and *in vivo* and infected with a pure culture of bacillus were used

In the first series three dogs were immunized with varying doses of bacillus coli vaccine and an infected clot was injected into the external jugular vein. Only one control was used. In the three vaccinated dogs there was a tendency toward localization of the infections as simple septic infarcts with abscess formation

In the second series twenty four to seventy two hour homologous and autogenous thrombi were used. In these also bacillus coli was the infecting agent. The emboli were injected into non-immunized dogs. The results were rather inconclusive. *FRAZER B BERRY M D*

Graham E A. The Treatment of Pulmonary Suppuration. *Am Surg* 1927 LXXI: 97  
Whittemore W. The Treatment of Chronic Suppurative Bronchiectasis. *Am Surg* 1927 LXXI: 9

GRAHAM discusses the various measures used in the treatment of chronic pulmonary suppuration and concludes that because of the great variety of forms of this disease no one method is applicable to all cases. Before treatment is begun the diagnosis should be complete as to the location of the lesion, the types of microorganisms causing it and the presence or absence of a foreign body, malignancy and complications such as brain abscess, pericarditis and suppuration in the nasal sinuses

Twenty five per cent or more of pulmonary abscesses heal spontaneously. These are usually abscesses which drain by rupturing into a large bronchus. In many cases even those of several years duration a surprising recovery results after even simple treatment such as artificial pneumothorax, the use of neosalvarsan for spirochetes, the correction of nasal suppuration and general supportive measures

Three cardinal principles in the treatment of chronic pulmonary suppuration are drainage, compression of the lung and extirpation of the diseased tissue

Drainage by posture or externally is helpful in many cases but the efficacy of the bronchoscope as a therapeutic agent in pulmonary suppuration except for the removal of a foreign body is yet to be demonstrated

Compression of the lung by artificial pneumothorax or thoracoplasty or paralysis of the diaphragm by the oesophagus usually does not effect a cure. Diseased tissue which is allowed to remain may be the source of a recurrence

In chronic refractory cases it seems desirable to remove the diseased tissue. Ordinary lobectomy has a high mortality because it exposes large raw surface to infection and the Whittemore operation is suitable only when the lobe is mobile and can be brought outside the chest wall. Graham more recommends especially for cases with numerous adhesions and multiple abscesses the method of cauter pneumectomy which he first introduced in 1925

In this procedure the portion of the lung affected is exposed by the resection of about 4 in of three or four ribs and without any separation of adhesions but with their production if none exists a large area is cauterized, numerous bronchial fistulae being thereby formed for massive drainage. The cavity is then packed and not disturbed for four or five days. Between cauterizations an interval of at least two or three weeks is allowed to elapse. The control of hemorrhage is not difficult. Large vessels are ligated. As the blood pressure in the pulmonary arteries is between 20 and 25 mm Hg, oozing is easily controlled by packing

In routine cauterizations in forty five cases there was only one fatal hemorrhage. This occurred during the night of the twelfth postoperative day. A death could have been prevented if the patient had been more carefully watched

The method described combines all of the principles known to be effective in the treatment of chronic pulmonary suppuration, namely drainage, compression and extirpation of the diseased tissue and in Graham's opinion is more effective than other procedure. The factor chiefly responsible for the mortality of lobectomy—suppurative mediastinitis—is absent. There is no possibility of the mediastinal diaphragm cycle or pericardium, an effort is always made to remain within the lung tissue. Because of the complete absence of shock

# SURGERY OF THE ABDOMEN

## GASTRO INTESTINAL TRACT

Tisdall F F Poole M W and Brown A Jyloric stenosis of Infants 1 J D Child 97 12 190

At the present time there is considerable divergence of opinion as to whether congenital pyloric stenosis should be treated medically or surgically. The authors believe that the solution to the problem lies in a definite diagnosis between hypertrophic stenosis and pylorospasm.

The cardinal symptoms of hypertrophic pyloric stenosis are projectile vomiting, visible gastric peristalsis, a palpable pyloric tumor, constipation and small stools.

In pylorospasm the skeletal musculature is hypertonic, the vomiting is less of the projectile type, the stools are not so small and no tumor of the pylorus is felt.

In a series of 10 cases of hypertrophic pyloric stenosis the authors were able to palpate a tumor mass in 92 per cent, a percentage considerably higher than that reported by others. They attribute the difference to the inclusion of cases of pylorospasm in some of the other reports.

They believe that cases of pylorospasm should be considered cases of difficult feeding and treated medically. Cases of true hypertrophic pyloric stenosis should be operated upon as soon as the diagnosis is established but there should be close cooperation between the physician and the surgeon.

In the 120 cases reviewed by the authors the Rammstedt operation was done. The mortality was 13.2 per cent. 1 J Child 100 12 190

St John F B The Results of Surgical Treatment of Caecoma of the Stomach 1 J Surg 19 7 1913 83

The author presents data on 14 cases of carcinoma of the stomach surgically treated between 1906 and 1926 at the Presbyterian Hospital, New York. Ninety-seven of the patients were males. Nine patients were under 35 years of age. The youngest was 33 years old.

The average duration of symptom referred directly to the gastrointestinal tract was eight months, the shortest period one week, and the longest period three years. The loss of weight in 12 cases averaged 30 lbs. In two cases no loss of weight was recorded while in twenty-two the loss was marked.

Pain was a distinct symptom in 86 per cent of the cases. Repeated vomiting occurred in 103 (71 per cent). In seventy-eight cases an abdominal mass was palpable.

The occurrence of pain, vomiting, and an abdominal mass in so high a percentage of cases demonstrates the advanced type of the lesion present.

One hundred and twenty-five of the 140 patients who were followed were dead within eighteen months. Only eleven were alive at the end of four years.

Of thirty-two patients subjected to radical resection, only eighteen survived the operation. Four are alive after four years or less and five are alive after five years or more. Of the latter four are free from symptoms. In all of the other cases either exploration alone or exploration with some palliative measure was performed.

While definite conclusions cannot be drawn from such a few cases, it is apparent that earlier diagnosis is necessary for more favorable results.

MANUEL E. LICHTENSTEIN, M.D.

Paterson H J Hints on the Treatment of Patients Before and After Gastric Operations 1 J Child Surg 9 7 1917 307

Before performing a gastric operation the author keeps the patient in bed for a week. He avoids the administration of cathartics by giving liquid paraffin. In order to reduce infection and alkalize the urine nothing but sterile liquids and soda are given for three days. Glucose and saline solution are administered by rectum. The abdomen is prepared the day before operation with acetone and 1 per cent picric acid and again at operation with spirit soap and Harrington's solution.

In the transportation of the patient to his room he is kept warm. On his return to bed he is reclined in dry clothes and placed in Fowler's position. Continuous proctocolysis with a 3 per cent solution of glucose in saline solution is maintained for at least forty-eight hours. After ulcer operations diet changes are gradual but patient treated for cancer are fed rapidly. When nausea ceases, diluted milk is given in increasing amounts up to 2 oz hourly. Jelly and Benger's food are added on the second day, and egg on the third day. After the bowels are open, bread and butter, custard and junket are given. Following gastro-enterostomy for ulcer, the diet consists for six months of milk, eggs and fish. For nine months meat, fruit and starchy foods are avoided. Liquid paraffin is continued after the operation and an enema is given on the fourth day. Lurgat ves are rarely necessary. The patient is kept in bed for four weeks and wears a support for six months.

As flatulence is rare, drugs are seldom required for the relief of pain, but if they are necessary, aspirin or trional are preferable to opiates. The author considers stimulants useless in shock. The

lungs by altering the intrathoracic tension and destroying structures which are irreparably diseased.

3 This obligation can be met whether the disease is incipient or advanced by combining rest, diet, fresh air, sunshine and drugs with operative measures (transfusions of unmodified blood, the intravenous administration of salt and glucose solutions, the induction of palsy of the diaphragm, resection of the parietes and partial or complete lobectomy with the cautery).

4 Operative adjuncts to the non-operative methods of treatment applicable whether the disease is incipient or more advanced are available and will meet the therapeutic requirements if used in the proper sequence without adding hazards save the infrequent accidents of minor surgery.

5 Irreversible improvement in the treatment of pleuropulmonary tuberculosis is assured and will be more rapid if the non-operative and operative measures now in use are modified and new measures are developed to cooperate more effectively with the natural responses which provide resistance, defense and repair. FRANK C. R. BRISSEX, M.D.

### ESOPHAGUS AND MEDIASTINUM

Moore I. The Pathology of Esophagectasia. Dilatation of the Esophagus without Anatomical Stenosis at the Cardiac Orifice. *J. O. Ry Soc. Med. Lond.* 1927, 2: 133.

Moore demonstrated the following specimens of esophagectasia:

1 Dilatation of the esophagus. This specimen showed only a moderate degree of fusiform dilatation. The walls were only slightly thickened. The mucosa was smooth and presented no ulceration, adhesions or cicatrices. Microscopical examination revealed chronic catarrhal changes of the mucosa and submucosa and absence of degenerative changes in the muscular coats. The obstruction and dilatation were probably caused by compression by the dilated heart and thoracic aorta.

2 Dilatation of the esophagus due to cardio-spasm. This specimen showed a slight degree of dilatation throughout. The wall was thinned and the longitudinal folds were obliterated.

3 Achylasia of the cardia (idiopathic dilatation and hypertrophy of the esophagus). The upper segment was of about equal caliber throughout but below there was a distinct fusiform enlargement. The mucosa was normal except at the lower end where there was a slight erosion. The muscle was

hypertrophied but showed gradual thinning at the dilated portion. Microscopic examination of the middle of the specimen revealed shedding of the epithelium, submucous thickening and fibrosis and hypertrophy of the muscularis mucosae. The lower end showed complete desquamation of the epithelium and atrophy of the muscularis mucosae.

4 Esophagus with fusiform dilatation. The esophagus was greatly dilated but showed a sudden contraction near the cardia. The muscular coat was hypertrophied and the mucosa ulcerated.

5 Esophagus with dilatation. The esophagus was grossly dilated except in its diaphragmatic portion and upper extremity and formed a large S-shaped bend. The muscular coat was hypertrophied. The sac was three times the size of the stomach.

There are three varieties or degrees of dilatation of the esophagus: (1) the fusiform which is the most common; (2) the flask or pear-shaped which is next in frequency; and (3) the S-shaped which is the least common.

Hypertrophy of the muscular coat is usually secondary and compensatory in character and varies in degree at different levels of the dilatation. Walt states that the more marked the dilatation the greater the hypertrophy.

Another specimen demonstrated was one which showed a transthoracic anastomosis made between the dilated esophagus and the fundus of the stomach for structure at the lower end of the esophagus.

In summarizing Moore states that the loss of normal muscular contractile actions and relaxation was due to destruction of the nerve mechanism of Auerbach's plexus and that some of the degenerative changes may be due to a toxic condition.

IRVING K. M.D.

Jewesbury R. C. Two Cases of Spasmodic Stricture of the Esophagus. *Pac. R. S. Med. J.* 1917, 2: 13.

In the two cases of spasmodic stricture of the esophagus reported by Jewesbury the condition occurred in children. In a review of the literature on the esophagus no similar cases were found. In the author's cases no organic changes were discovered. All that was seen with the esophagoscope was the stricture.

In one of the cases the symptoms began when the child was 4 years old. He is now 11 years old. In both cases the stricture developed rapidly and responded rapidly to dilatation. IRVING K. M.D.



to the tract. The withdrawal of blood from the portal vein was done by a modification of the London portal vein angiotomy and the withdrawal of arterial blood was done from the muscle branches of the femoral artery.

The blood was examined as to its albumin content (measured by the refraction index) its specific gravity, viscosity and osmotic pressure. Its content of residual nitrogen, sugar and chloride and its power of acid fixation. In addition the hydrogen ion concentration and the osmotic pressure of the intestinal contents were determined. To obtain the plasma 5 ccm. of blood were taken from both the artery and the portal vein. To prevent loss of carbon dioxide this was aspirated under oil and was maintained in an uncoagulated state by the addition of sodium citrate. In addition 5 ccm. were taken from both the artery and the portal vein and immediately defibrinated. All determinations were made within twenty-four hours.

In preliminary experiments it had been determined that the fettering of the animal and the local anæsthesia had no noticeable effect upon the blood sugar content. The physiological variations of the factor determined were changed by the various phases of digestion. Only slightly in no case did they exceed the variation noted in fasting animal. In these preliminary experiments the intestinal contents were all always found hypertonic and acid.

With the depletion of water from the tissue was an increase of the serum albumin content associated with a slight increase in viscosity. The osmotic pressure increased considerably and the non-coagulable nitrogenous substances (residual nitrogen determination) were increased markedly (increased destruction of albumin with insufficient excretion). Acidosis began even before the increase in the residual nitrogen. This thirst type was partly accentuated by the intravenous infusion of a hypertonic (Cauler salt solution which quickly with frastrated and partly displaced by the dilution of the blood. When venesection was added the developing thirst picture was interrupted.

The ileus experiments were conducted by ligation of one of the upper loops of the jejunum with an umbilical tape under local anaesthesia. In several experiments a coil of intestine 15 mm. long was shunted out by double ligation.

The findings of the blood examination are shown in tables. The regular changes are shown by curves (according to Schade). When the curves are compared with the observations in the thirst picture it is seen that in addition to the loss of water which can be regarded as the main cause of death there is a factor which acts in the manner of an alkaline blood change. As the alkalinity is apparent either exclusively or chiefly in the blood of the portal vein and as in ileus the intestinal content is always found to be distinctly alkaline as compared with the normal state the cause of the alkalosis of the blood is probably to be sought in the diseased intestine.

LINZEE (Z)

Weeks A and Delprat G D Intussusception  
A. J. Ped. 1927 xlv 469

Intussusception is essentially a condition of infancy. The ages of fourteen patients whose cases are reviewed by the authors ranged from 4 to 12 months. Nine of the patients were males.

The causes of intussusception are mechanical and dynamic. When a foreign body such as a mucous polyp or worms becomes attached to the intestinal wall the pull of peristaltic action tends to invert the point of its attachment. Hypertrophic lymphoid tissue which is known to be quite extensive in infancy may also act as a foreign body. With variations in the tone or spasticity of the intestine a highly contracted portion may be forced into an adjacent atonic portion by hyperperistalsis.

Intussusception may occur in any portion of the intestine. In eleven of the fourteen cases reviewed the condition was ileocecal and in three it was cecocolic. The greater frequency of intussusception in the ileocecal region as compared with its occurrence in other locations is explained by the sudden change in the size of the intestinal lumen in the ileocecal region which facilitates telescoping.

Intussusception is followed by constriction, venous stasis, œdema, swelling, strangulation, necrosis and gangrene. The mass has a peculiar bluish sheen. It is firm to the touch and curved on itself because of its mesenteric attachments. The engorgement of the mucosa which occurs early produces a bloody stool.

The symptoms usually occur in a previously healthy child and are typical. A sudden shriek due to pain followed quickly by pallor. The child then gradually quiets down to apparent apathy which is interrupted by occasional cries as the intussusceptum advances in the intussusciptum and drags on the nerves. A mass may be felt at the site and is not obscured by muscle wall rigidity. Any of the symptoms of ileus and peritonitis may develop. A leucocytosis of from 15,000 to 30,000 cells appears early. Vomiting or regurgitation occurs soon after the onset of the condition. Faecal vomiting is rare. Bloody mucous stools are quite constant.

The treatment is surgical unless the patient is seen early and the intussusception is located in the colon where it may be possible by distention of the bowel with water or air to effect its reduction. If several days have elapsed since the onset of the condition adhesions will have formed rendering reduction impossible. If reduction is effected a bubbling sound is heard. An attempt should be made to effect reduction before operation is undertaken.

The operative incision varies with the location but usually a longitudinal right rectus incision will give ample exposure.

The portions of the intestine should not be pulled apart. If the intussusciptum is gently milked about the head of the intussusceptum the inner portion will move up rapidly and the mass can usually be drawn out of the abdomen and handled more easily. As the œdematous head of the intussuscep-

best treatment is proctoclysis the application of heat and the injection of pituitrin. He uses chlorodyne for post anesthetic vomiting and recommends routine breathing exercises to reduce the likelihood of lung complications. Acute dilatation of the stomach requires prompt gastric lavage.

BETTYN CLARK JR MD

Glessner K and Ettinger D Clinical Follow  
Up After Gastric Operations (Jin che y ch a  
teru hu g n bei lag penette) A ch f l r  
da ngst a k k 192 1 33

The treatment of gastric ulcer is a field contested by internists and surgeons. Therefore it is necessary to investigate in detail those not rare cases in which after a gastric operation the preoperative disturbances persist or new disturbances develop. The follow up of patients with such disturbances is of the greatest importance. The authors re-examined sixteen patients who were hospitalized with the results of operation. Three had been treated by gastroenterotomy and thirteen by resection. The study was made with regard to the history, the character of the gastric juice during the fasting state and after a test breakfast, the presence of blood in the stools, the microscopic findings in the gastric juice, the results of the neutral red test, the Glaser-Hitegaister method and the roentgen findings.

In the cases of the three patients treated by gastroenterostomy the postoperative condition was characterized by symptoms of ulcer or hyperacidity, nausea or vomiting one half hour after meals, hypersecretion and hyperacidity but sometimes normal acid values and the occasional presence of blood in the stool. On X-ray examination a spot of inflamed pressure was found at the site of the anastomosis and in all cases there was a definite reflux. The neutral red test was normal. Accordingly it is evident that there is a renewed activity of an old ulcer or an ulcer of the jejunum. The operations were performed in 1915, 1919, and 1920.

In the three cases of resection the operations were performed in the period between 1900 and 1915 by the Billroth II method and Mikulicz method. Only one of the patients was free from disturbances. The rest complained of trouble due to a small stomach or faulty functioning of the anastomosis. The symptoms included a feeling of distention after eating, nausea and vomiting, regurgitation from the bowel, loss of appetite, the development of chronic gastritis, the appearance of mucus in the stool, and a vicious circle. Free hydrochloric acid was present in only one case. The roentgen findings were uniform in all cases, but the authors do not say what they were. Chromoscopy was of value as in some cases the dye appeared in one hour, and in that some of the secreting cells were still functioning.

In conclusion the authors emphasize that gastroenterostomy does not change the disposition to ulcer formation. The results of resection are better. The difficulties in cases treated by resection are explained by the small stomach and regurgitation too much.

mucosa has been removed and the musculature of the stomach has been injured. Only the portion of the stomach containing the secreting cells should be removed. The patient whose case are reviewed developed postoperative disturbances in spite of the fact that the operations were performed by skillful surgeons. It is necessary to devise a method of operation that will remove the ulcer and in addition only the secreting portion of the stomach which can be determined exactly by the neutral red test.

R. E. FINE (2)

Brockman R St L The Treatment of Acute Intestinal Obstruction *Lancet* 1927 c x 33

Brockman states that in spite of the advances made in surgery the basic cause of illness is still unknown. The two theories find a most favor to-day respectively attribute the condition to the action of bacteria and the toxic element a obstructed blood.

The action of bacteria in the production of rickets can be explained only on the basis of altered physiological action of the intestine probably of the mucosa.

With re ard to the action of the toxic fluid in ileus it was proved in experiments on animals that when such fluid from an animal with ileus was injected intravenously into another animal it produced the same symptoms of obstructive ileus as noted in the first animal. It was found also that when a loop of duodenum was tied off and a posterior gastro-enterostomy performed the animals so treated developed the symptoms of ileus noted in clinical cases of ileus.

On the basis of the a symptom that to counteract bile must be brought freely into contact with the mucosa of the lower bowel Brodman treated cases of jaundice by rectal instillations of human bile diluted with normal saline solution. He reports thirteen such cases in which following treatment the symptoms of acute icterus subsided. When enemas were without results after the subsidence of the vomiting distention and rapid pulse he concluded that a mechanical obstruction was present which required surgical intervention. Orally administered bile had the same effect as human bile.

I. CONRAD BISHOPMAN & D.

Iaebl r C. In est/gati n n the Mol-cular Ps  
 th logy of Experimental Occlusion f the Small  
 Intestine and a Contribution n the Tech  
 nique of Portal Vein Angio tomay n the  
 Patil logical Phyl g. f Dedicati n (Later  
 n h g zu M lekul rp th l me d vpe nra  
 tell U e n larm Erschl es z l m stom und r  
 zur T hauk d f fstad r l m stom und r  
 path l g che Phyl g d Wa. e atz h e)  
 Zl a f d e p f M d 0 7 l 5 4

Experimental investigations were conducted on thirty seven dogs to determine what changes occur in the blood in intestinal occlusion especially in its passage through the capillaries of the injured digest

Rosenthal P The Simultaneous Occurrence of Duodenal Ulcer and Diverticulum with a Report of Two Cases (Ueber das gleichzeitige Vorkommen von Ulcus und Divertikel am Duodenum in Anschluss an zwei einzelne Fälle) *Mitt d Gr g b f M d u Cl r* 92 xl 135

Reports of the last year show that diverticula of the duodenum are not as rare as was formerly supposed. They cause no particular clinical symptoms but are of practical importance because of the simultaneous occurrence of ulcer formation.

The author reports two cases in which with one or several ulcers there was present behind the pylorus a diverticulum including all of the walls of the intestine.

With the exception of certain congenital formations the development of diverticula is explained by pulsion and the change in the intestinal wall associated with the healing of ulcers. When the surgeon finds a diverticulum at operation he should search for an ulcer in the vicinity.

Typical roentgen pictures of diverticula near ulcers have not yet been obtained. *BRIENER (Z)*

Stetten Delly Ballooning of the Left Lower Abdominal Quadrant as an Early Sign in Perforated Duodenal Ulcer With Observations on the Characteristic Spread of Rigidity in Acute Abdominal Lesions *J U S* 197 ix 8

This article is a report of a case of perforated duodenal ulcer with ballooning in the left lower abdominal quadrant as one of the early signs. The preoperative diagnosis was confirmed at operation.

The patient a man 47 years of age gave a history of chronic hyperacidity and gastric disturbances and sudden development of acute abdominal pain with vomiting and distention in the left lower quadrant of the abdomen. Visible peristalsis was questionable. The right upper quadrant had a board-like rigidity and live dullness was diminished. The distention in the left lower quadrant was explained by seepage from the perforation which caused muscle spasm that forced the intestinal contents to this region which is the last to become involved by rigidity. This sign is variable and often missed. It may aid in the placing of the incision.

Perforating lesions elsewhere in the abdomen are discussed from the standpoint of ballooning.

*C O HEIM M D*

Leuf J Perforation of Postoperative Jejunum Ulcers into the Free Peritoneal Cavity (La perforation en pértoicéle de ulcères postopératoires du jéjunum) *R d k F r* 97 xl

The author reports a case of free perforation of a gastrojejunal ulcer occurring five and one half years after posterior gastroenterostomy for pyloric ulcer. The lesion was resected together with a cone-shaped portion of the stomach and a Y anastomosis was made. The pylorus was temporarily occluded with a catgut suture and the abdomen closed without drainage. Recovery was delayed by a persistent cough of five days duration and by threatened

thrombophlebitis. On one occasion there was some return of the pain but this has now entirely ceased and gastric motility and chemistry are satisfactory.

The author reviews thirty four cases of free perforation of postoperative jejunal ulcers twenty nine of which have been reported previously. He places the incidence of jejunal ulcer after gastroenterostomy at from 1 to 4 per cent. About one in four of such ulcers perforates. Of the ulcers in the cases reviewed fifteen occurred after an anterior gastroenterostomy eleven after a posterior gastroenterostomy three after a Y anastomosis and two after a Billroth II resection. The interval ranged from two days to thirteen years. In twenty six cases a single ulcer was found and in eight there were multiple ulcers. The latter group should be considered apart as they represent for the most part ulcers due to operative trauma of the jejunum and are not strictly speaking peptic ulcers. This type is very prone to perforate early. Five of the eight reviewed perforated within two months after the operation.

The solitary ulcer is a true peptic ulcer and due largely to exposure of the jejunal mucosa to the irritating gastric contents. Other causes are dilatation of the efferent jejunal loop too long a loop for ion causing interference with the circulation and mechanical trauma from the gastric contents.

Jejunal ulcers are as a rule recent ulcers and may readily perforate without prodromal symptoms. Ulcers occurring at the site of the anastomosis are more chronic and call us and more frequently give rise to prodromal signs for a considerable time before perforation. Of the eighteen cases of the former type which are reviewed the perforation was discovered at autopsy in nine. Of the eight cases of the latter type a correct clinical diagnosis was made in seven.

Repeated operation was necessary in two cases making a total of nineteen operations. Seventeen of the operations were for a single ulcer. There were two deaths.

Early operation improves the prognosis. Of the patients who survived only one was treated by resection. The treatment of the others was simple suture. A second perforation occurred in two cases in which the lesion was merely turned in and sutured. Only two patients with multiple ulcers were operated upon. Both died although the operation was performed early. In both of these cases the perforation was sutured over and the ulceration subsequently extended to involve the line of suture. In such cases resection should be done in order that the suture may be placed in healthy tissue.

*LEO M ZIMMERMAN M D*

Fethes The Abdominoacral Operation for High Carcinoma of the Rectum with Preservation of the Sphincter (Abdominoacral Operation ohne Hochtumorresektion mit Erhaltung des Sphinkters) *St T g d d tsch G f Ch* B l 97

The advantages of the combined method of operating in carcinoma of the rectum are clearly evident

tum reaches the neck of the intussusciptiens special care is necessary to prevent tears and breaks in the serosa. The inner portion will appear dark and congested. If its color does not improve and peristaltic waves do not pass through it after it has been wrapped in a warm towel for a few minutes resection of this portion with end-to-end or lateral anastomosis should be done.

In the cases reviewed there were two deaths both due to the fact that the condition had been present three or four days when treatment was given.

ROBERT M. GRIER, M.D.

Wood R. H. and Pena S. S. Tumors of the Small Intestine—Report of a Case of Adenocarcinoma. *J. Surg. & Gynecol.* 1927 25: 202.

The majority of tumors of the gastro-intestinal tract occur in the stomach and colon but the small intestine is also sometimes invaded.

The benign tumors include the adenoma, lipoma, myoma, and fibroma. Most of the pedunculated tumors classified as polyps are adenomas.

The malignant tumors are carcinoma and sarcoma. Sarcoma occurs more frequently than carcinoma. All types of sarcoma are found but the lymphosarcoma is the most common. Sarcoma may occur at any age. It begins in the submucosa or muscularis. As a rule the mucosa is intact but in some cases it may be ulcerated through. Crossly sarcomata are softer than carcinomata and often contain minute areas of necrosis suggesting tuberculous.

The small intestine is remarkably free from carcinoma. Judd found only twenty-four cases of carcinoma of the small intestine during a period when 1,822 cases of carcinoma of the colon and rectum and 1,639 cases of carcinoma of the stomach were seen. The duodenum is involved more frequently than any other portion of the small intestine. In this region carcinoma occurs following ulcer. It may develop also at the ampulla of Vater. It is least common in the third portion of the duodenum.

In the jejunum and ileum carcinoma occurs most frequently in a degenerated pedunculated adenoma and less often in the form of an annular neoplasm. Metastasis is not common.

The diagnosis is difficult. Benign tumors may cause no symptoms until intussusception occurs. In cases of malignant tumors there may be a loss of weight and strength, blood in the stool, alternating diarrhea and constipation and recurrent attacks of obstruction with vomiting, cramp-like pain, distention and audible rumbling. If the ampulla is involved jaundice may be present. The X-ray may help in determining the site of the tumor.

In early cases resection may prolong life but in the majority only enterostomy or X-ray therapy is possible.

The authors report the case of a woman 44 years of age who complained of poor appetite, indigestion and constipation of two years duration. Symptoms of chronic obstruction were present and a soft

movable mass was found in the left side of the abdomen. Examination of the blood revealed a mole at anemia. The blood Wassermann reaction was positive. Anti-syphilitic treatment was given but failed to cause improvement and the patient died after one month in the hospital.

Autopsy revealed a mass the size of a large grapefruit involving the jejunum and nine smaller masses involving various portions of the small bowel. The pathological diagnosis was primary multiple adenocarcinoma of the small bowel.

I. EDWARD FISKE, M.D.

Gray I. Duodenal Ulcer Symptom Complex in Patients Not Having Ulcer. *J. Am. M. A.* 1917 11: 676.

In one third of 50 cases presenting the clinical syndrome of duodenal ulcer the symptoms were found to be due to reflex stimuli. While it is generally acknowledged that the history is of the greatest importance in cases of duodenal ulcer the diagnosis cannot be based on the history alone. Visceral pain has a definite relationship to visceral function and expresses perception of activity rather than structural disease. In the cases reviewed the causes responsible for the ulcer syndrome were: tobacco smoking in 41.2 per cent, chronic gall bladder disease with or without stones in 23.1 per cent, constitutional conditions (e.g., sympathetic colic, neuritis) in 18.0 per cent, chronic appendicitis in 8.7 per cent, and miscellaneous conditions such as post-operative adhesions, chronic disturbances of gastritis, hernia and syphilis in 8.4 per cent.

The fact that reflex stimulation rather than local disease was responsible for the ulcer syndrome in these cases was established by the following observations:

1. Treatment directed toward the underlying condition gave relief.

2. Repeated roentgen ray examinations were negative.

3. There was continued absence of blood from the stools.

4. Freedom from symptoms was noted for a period of from one to three years.

Pylorospasm was present in 81 per cent of the cases. In those of patients who were tobacco users it was present 79.0 per cent and in those of patients with gall bladder conditions it was present in 82 per cent. It was independent of the gastric acidity and was present in several cases showing achylia.

Gray is of the opinion that while careful consideration of the history is of great importance in diagnosis, particularly in diseases of the gastro-intestinal tract, greater care must be taken in the interpretation of the symptoms. However, since the syndrome of duodenal ulcer the diagnosis must be confirmed by X-ray examination.

Removal of the foci of infection and treatment of the underlying cause of the reflex gastric phenomena will cure a great many of the gastric complaints.

H. WARD A. MCK. CUR, M.D.

formations in this region but of very restricted extent

As a result of the failure of the two hollow organs to fuse into one there may be at the mucocutaneous juncture of the rectum and anus an imperforate membrane—a membrane with a small opening in the center of the mesodysphragm type a membrane with a larger hymen like opening with a circumferential shelf or a membrane that is emilunar or sickle shaped. This membrane may be soft and pliable and composed of mucosa alone or firmer and contain both the mucosa and submucosa.

There are reports also of tubular or cylindrical constrictions of greater length in which either the mesenteron or the proctodeum fail to develop completely. In these the walls are more rigid and contain all of the layers of the bowel. In some cases Houston's valves have been regarded as the cause of obstruction.

HOWARD A. MCKNIGHT, M.D.

### LIVER GALL BLADDER PANCREAS AND SPLEEN

Case of A. Dodek S. M. and Gordon B. Calcium Studies in Jaundice with Special Reference to the Effect of Parathyroid Extract on the Distribution of Calcium. *J. Biol. Med.* 9: 7-11, 19.

The authors show that there is a wide variation in the calcium content of whole blood in jaundice as compared with that of normal blood. After the administration of 15 units of parathyroid extract the variation is altered so that at the end of twelve hours the calcium content of the blood of jaundiced persons correspond almost exactly to that of normal persons treated in the same manner. The conclusion is drawn that parathyroid extract acts as a mobilizer of calcium and in jaundice tend to restore the normal distribution and functional availability of this element. Through these changes the tendency toward slow protracted hemorrhage noted when the tissues are incised in the presence of jaundice may be lessened.

F. I. TITUS, M.D.

Kaplan M. and Fulde E. The Indications for Surgery in Jaundice. *Deutscher Stillg. Chir. u. G. B. H.* 1917, 391.

In obstruction due to stone comparatively early operation is the proper procedure. If fever and chills persist without any tendency to subside operation is best performed on the third or fourth day after the appearance of the jaundice. If the obstruction is complete but without fever operation should not be delayed longer than two weeks as the liver soon becomes so injured that among other disturbances there is danger of cholemic hemorrhages. In cases of intermittent or incomplete obstruction without complications it is well to operate within four weeks after the onset of the jaundice if possible at a time when the jaundice is least marked. In cases of jaundice caused by stone a properly timed operation is

of importance also because the permanent results of surgical treatment may be influenced by too long delay.

The earliest operation is indicated by obstruction due to tumor. In such cases an exploratory operation is often necessary. Radical operation is indicated by favorably located carcinoma of the hepatic or common duct and of the papilla of Vater. Whenever possible the operation should be performed in one stage. External drainage of the bile is definitely to be condemned. Carcinoma of the bile passages is a very serious condition but early operation improves the prognosis.

In enlargement of the liver with jaundice a positive diagnosis is essential. Often an exploratory operation cannot be avoided.

The indication for operation in cholangitis is determined from the temperature and the leucocyte and bacterial content of the bile removed by the duodenal tube. In operations in which the bile is shunted inward caution is necessary because in benign obstructions the passages will probably open again spontaneously and the anastomosis may then act as a pathway for infection.

When the finding of palpation suggests a tumor of the papilla the diagnosis is best made by transduodenal intubation and splinting of the papilla.

The author considers biopsy on the liver a hazardous procedure.

COLLEY (Z)

Sala R. A. Fatal Hemoperitoneum from Ulceration of a Latent Primary Cancer of the Liver. *Empey's Medical Journal* 1917, 101.

In the case reported the diagnosis of hemoperitoneum was based on the presence of periumbilical ecchymoses (Cullen's sign) and the findings of an exploratory puncture. At operation 7 liters of bloody effusion and numerous clots were removed. The source of the hemorrhage could not be located.

Autopsy revealed an endothelioma evidently of periportal origin which had produced enormous enlargement and deformity of the liver. There were two cauliflower ulcerations 5 and 6 cm in diameter respectively. The growth had destroyed nearly two-thirds of the organ. The left lobe was reduced to a mere appendage of normal tissue. In spite of these changes the patient a farm hand had felt well and had been doing heavy manual labor until a little more than a month previous.

MINA A. CHILDERSLEEVE

Beggiato U. A Case of Primary Myxoma coma of the Liver Simulating Hepatic Abscess. *Ucas di medicina primitiva e di patologia sintomatologica* 1917, 101.

Beggiato's patient a girl 6 years of age was first treated for gastro-enteritis. Her initial symptoms being digestive disturbances accompanied by headache and vague abdominal pain. Later persistent

The superior hæmorrhoidal artery can be ligated at the right point and a better view of the operative field is obtained. In some cases that appear to be inoperable a good operation can be performed. The formation of a durable pelvic floor is possible. If an anus must be formed it is better situated on the abdomen than at the sacrum. The primary mortality is not increased by the combined method nor is the shock so great that an abdominal operation is contra indicated.

The chief question in the use of Kirschner's combined method is whether an amputation should always be done or whether when possible resection may be performed. The objection to resection that the sphincter is damaged and there is more danger of recurrence is not valid. Several patients treated by this method at the Tuebingen clinic have been free from recurrence for as long as five years. Therefore Perthes still advocates the resection method and has extended it. He begins the operation by exposing the rectum from below by Voelcker's method. The muscles are spared as far as possible. To obtain a better approach only the coccyx is removed. The middle hæmorrhoidal artery is ligated. After exposure of the tumor two guide sutures are attached to the rectum. The second stage of the operation then follows.

With the patient on his back the abdomen is opened and the flexure mobilized to the fullest extent. After exposure of the rectum on both sides the decision is made as to whether the case is suitable for resection or whether amputation should be done. After resection the two stumps lie side by side. When possible the intestine is drawn through and attached to the rectum by several stitches. If the flexure does not appear to be well enough nourished a side to end anastomosis is established between it and the rectum. The end of the flexure is then brought out and after eighteen days is cut off and closed.

In the discussion of this report FUETNER stated that in his opinion this method represents an important achievement.

FINSTERER (Vienna) emphasized that the abdominosacral method has so high a mortality because it is an operation of necessity. He believes its death rate will be decreased when it becomes an operation of choice. The chief causes of death are shock and infection. To obviate the first spinal and extended sacral anesthesia should be substituted for general anesthesia. To prevent infection Finsterer does a colostomy on the transverse colon a week previously. He begins the operation with a laparotomy and then lays the patient on his side and continues from below. Circular suture of the two extremities is to be avoided as it is always associated with fistula formation. However the method in which the sigmoid is drawn through the rectum also has its disadvantages as the sphincter is stretched too much by the drawn through sigmoid. Finsterer is a strong advocate of the abdominosacral method but only for carcinoma.

Such the carcinoma is situated high. Recurrences are rare.

KIRSCHNER (Koenigsberg) referred to his address before the Congress of the previous year in which he set forth the advantages of rectal amputation. In certain cases for preservation of the sphincter he has divided the latter in the median line detached it and after dissecting the rectum tucked the ends together again over the drainage through the intestine. Although in general he is an advocate of amputation he believes that there are certain borderline cases in which resection is permissible and for these he regards Perthes' procedure as the correct one.

MEISEL (Constance) also believes that the abdominal method is indispensable for a truly radical operation. However the procedure used must be adapted to the requirements of the particular case. Occasionally it appears that the limits of the tumor may be easily palpated from below but later it is discovered that it extends up to the flexure. There are cases also in which only the abdominal route is possible.

HABERER (Cruz) likewise prefers the abdominal method. As a rule the question as to whether a carcinoma of the rectum is operable can be decided only from above. Haberer begins the operation from above. To prevent infection in the sacral operation he has found it of value to introduce a strip of gauze saturated with Irgol's solution and leave it in place for a considerable time.

MOSKOWICZ (Vienna) mentioned that for some cases an abdomoanal procedure is suitable.

STREIBER (Z)

B. B. B. J. Simple Congenital Anorectal Stricture with Mega of the Intestine. Report of Six Cases. *J. Am. M. A.* 1917, 11: 662.

The author reports six cases of simple congenital anorectal stricture in infants which was associated with abdominal distention, distention of the colon, obstinate constipation and evidence of great distress. In most of the cases vomiting occurred. In some of them coils of intestine and increased peristalsis could be seen. In all of them there was apparently a sharp short firm constricting ring just above the anal sphincter. This differed in its calibre in different cases. In all it offered decided resistance to the examination finger but remained dilated to a greater degree with the insertion of each larger finger.

These congenital anorectal strictures appear to be due to an arrest of embryonic development. The hollow descending mesenteron or rectum apparently fails to fuse completely with the ascending tubular epiblastic invagination or proctodum which forms the anus. If in addition the urogenital membrane fails to separate then the urinary tract from the rectum and anus there are present all of the etiological factors which enter into the malformation. It is so common in this region. In simple congenital anorectal stricture there is then a congenital anomaly identical in origin with all other mal-

also examined microscopically. In every case the microscopic examination showed the picture of an inflammatory process around the gall bladder. The gall bladder was frequently embedded in old or recent adhesions. The gall bladder usually showed no change in shape but its circumference was somewhat enlarged. In the majority of cases the cystic duct was constricted, this accounting for the poor emptying power of the gall bladder. In such cases it is noted that during operation the gall bladder remains well filled and can be emptied only with difficulty. As a rule the wall of the gall bladder is somewhat thickened and the contents of the gall bladder consist of a tenacious black bile. Inoculation of the bile gave a positive result in only two cases. In one staphylococci and in the other colon bacilli were cultured.

Microscopically there was always the picture of a more or less pronounced inflammatory process. The tissue of the mucous membrane was markedly infiltrated by small connective tissue cells. The infiltration was either diffuse or localized around the blood vessels. The villi of the mucous membrane were hypertrophic and in places there were polypoid proliferations of the mucosa. The niches lying between the villi sometimes penetrated into the mass of the muscular layer which seemed to correspond to an extensive neoformation of ducts. The epithelial layer was well preserved in only some of the cases. In some of the necrotic areas calcium salts were deposited. In a number of cases the epithelium had been extensively destroyed. The form of the epithelial cells varied, being sometimes cylindrical, sometimes low and almost cubical. As goblet shaped cells were also found a mucous metaplasia of the gall bladder epithelium occurred in some cases. The appearance of mucous glands is to be considered the result of an inflammatory process. The muscular layer was hypertrophic. In the tunica fibrosa and subserosa inflammatory infiltrations were found. In addition the connective tissue was abundantly developed. The serosa was thickened especially in the cases in which a pericholecystitis was evident macroscopically.

In agreement with the previous investigations of Tietze and Winkler the author also found the picture of interstitial hepatitis of the liver. The inflammatory changes were located in the perportal spaces. The interlobular connective tissue showed inflammatory infiltration especially around the small biliary ducts and the blood vessels and in some cases the small biliary ducts were constricted by the inflammatory infiltration. The liver capsule showed the changes of pericholecystitis. Macroscopically there were adhesions between the liver and its surroundings and microscopically the cells of the liver lying beneath the serosa were flattened. In all of the cases the liver cells showed a drop of bile pigment which possibly may be interpreted as the result of a microtoma of the bile.

In half of the cases the excreted bile was examined in addition to the gall bladder to determine

first which of the two inflammatory processes—the appendicitis or cholecystitis—was the older. In a series of cases the wall of the appendix showed the signs of old inflammatory processes. From a comparison of the changes in the wall of the gall bladder and in the appendix the author came to the conclusion that the inflammatory process in the appendix was usually considerably older than that in the gall bladder.

SCHUBERT (Z)

Fettich G. A Clinically Observed and Operatively Cured Case of Cholecystitis or Cholangitis typhosa (Klin. ch. b. ch. t. und. perat. ge. h. lte. F. l. n. Cholecystitis bzw. Ch. la. gus. typhosa). *Gyógd.* 1927 LVII 298

This article reports the case of an 18 year old girl who for fifteen years had had attacks of chills and high fever with severe pain in the right half of the abdomen and jaundice. Recovery resulted after four weeks. A week before the patient was seen by the author she had another attack. The epigastrium on the right side was painful and contracted and the spleen was somewhat enlarged upward. The urine contained biliary pigment, erythrocytes and casts. The Widal test was positive. The Gaffky Eberth bacillus was isolated repeatedly from the stools but not from the blood.

The fever ceased after four weeks and three weeks later the patient left the hospital. Two weeks later the condition recurred. Operation revealed a thick walled gall bladder the size of an apple which contained several lentil sized stones. Small stones were found also in the hepatic duct. Cholecystectomy and drainage of the hepatic duct were done. Typhoid bacilli were cultured from the contents of the gall bladder and from the bile drained from the hepatic duct but could not be found in the walls of the gall bladder. The operation resulted in complete cure. No typhoid bacilli have since been found in the stool.

The author is of the opinion that the cholecystitis and cholangitis were not complications of the typhoid but were primary conditions caused by the Gaffky Eberth bacillus.

MAKAI (Z)

Jorns G. The Regeneration Processes in Free Transplants of Pancreas (Ueber d. Regenerat. d. s. organe in frei. P. kr. str. n. planten). *B. l. kl. Ch.* 1927 CXXXIII 682

Twenty three transplants of pancreas in adult rabbits were examined on the second third fourth fifth seventh eighth tenth eleventh fourteenth twentieth twenty second and thirty third days.

The operations were performed when the animals were in a fasting state. Pieces of pancreas the size of the head of a pin were transplanted under the usual precautions for asepsis into subcutaneous pockets previously made at a distance from the laparotomy wound. The transplants were usually examined in serial sections.

Up to the tenth day after the operation the transplants showed an increase in size. They appeared

fever and localization of the pain and tumefaction in the right hypochondrium led to the diagnosis of hepatic abscess. At laparotomy the liver was found to have a necrotic appearance. Brownish fluid mixed with blood was present but there was no trace of pus. At autopsy a tumor the size of an orange was found in the upper right lobe adherent to the diaphragm. Microscopic examination showed this to be a giant-cell myxosarcoma.

VINA L. CLIDE LEESE

Miller R. T. Jr. Benign Stricture of the Bile Ducts. *In Surg 1915; 1: 197*

The author presents the histories of three cases of benign stricture of the extrahepatic ducts. At operation in each case the common duct was found markedly thickened along its entire length. Exploration of the duct showed the lumen to be almost completely obliterated. The gall bladder wall also was thickened but the viscus was filled with bile and was free from gall stones.

Benign stricture of the extrahepatic ducts may be congenital or acquired. The most common congenital stricture is found at the ampulla. The cause of congenital strictures is unknown. Such strictures are found in infants usually at autopsy and only rarely in adults.

Acquired strictures may be of traumatic or inflammatory origin. Traumatic strictures commonly arise following the removal of common duct stones or injuries to the duct produced during efforts to control hemorrhage when the operative field is not clear. Inflammatory strictures are usually due to gall stones which in their progress through the common duct produced abrasions of the mucous membrane. In such cases ulcers develop and heal and the stricture results from contraction of the resultant scar tissue. Inflammatory strictures are usually well circumscribed and limited to a portion of the duct.

Complete fibrosis of the common duct along its entire length may be regarded as a third form of acquired stricture. While no one cause has been established as yet, the fibrosis is believed by some to be the result of an infectious cholangitis terminating in necrosis of the mucous membrane of the duct. The symptoms are those of common duct obstruction. Delay in the appearance of jaundice in a case with a long history of recurrent attacks of colic may be suggestive of the condition. Cholecyst gastrostomy or cholecystenterostomy is at present the most favorable therapeutic procedure.

MANUEL E. LICHTENSTEIN, M.D.

Ross S. G. A Study of Bile Secretion From a Case of Biliary Fistula. *J Lab & Clin Med 1917; 7: 1067*

In the case of a man 56 years of age who was admitted to the hospital in an intensely jaundiced and weakened condition, the author had an unusual opportunity to make a study of the bile secretion. The patient had undergone two operations, the first

seven years previously for the excision of a gastric ulcer with severe hemorrhage and the second nine months previously for acute intestinal obstruction caused by adhesions around the upper small intestine.

The jaundice developed soon after the second operation and had progressively increased until the skin became deeply bronze. Ten days after the patient's admission to the hospital the abdominal cavity was opened and found to contain many adhesions in the upper right quadrant. The common bile duct was enormously enlarged. No gall bladder was found. The ampulla of Vater was embedded in a mass of adhesions and would not permit the passage of a fine probe into the duodenum. A catheter was placed in the duct as a drain. Five months later the jaundice had completely disappeared and the patient had gained 30 lb and was able to do his work.

Later he was readmitted to the hospital for a study of the bile secretion. For these investigations he was placed in the Trendelenburg position and lipiodol was injected through the drainage tube. Although the biliary radicles were well outlined in the X-ray films no gall bladder was seen. The patient had developed a desire to drink his own bile which added to the interest of the studies.

The average daily secretion of bile varied from 725 to 1010 c.c. When the drinking of bile was discontinued the daily output decreased more than 300 c.c. and the specific gravity of the secreted bile was reduced. Records of the bile secreted every two hours showed a remarkable uniformity. The amount secreted at night was apparently reduced.

A high carbohydrate diet was tolerated best. A high fat diet could not be tolerated. A high caloric diet gave an increase in the daily output of bile.

The blood calcium and phosphorus remained constant and seemed to be independent of the ingestion of bile.

Various diets were tried and the results noted carefully. The most pronounced findings were made in connection with the high caloric diets. The diet most acceptable to the patient contained 450 gm of carbohydrate, 40 gm of protein and 20 gm of fat, yielding approximately 2140 calories.

HEROLD M. CAMP, M.D.

Genkin I. Pathological Anatomical Changes in the Liver and Gall Bladder in Chronic Cholecystitis without Stones. (*Pathol. in Anat. and Histol.*) *Verh. d. Ges. f. Path. u. Anat. 1917; 1: 111*

Diseases of the gall bladder and biliary passages are frequently accompanied by changes in the parenchyma of the liver which not infrequently cause death after an operation for gall stones. Tietze saw in cholelithiasis only a part of a general hepatic disease.

The author studied in detail fifteen cases of cholecystitis without stones. In each instance a piece of liver tissue was excised at the time of operation. Pieces of the wall of the gall bladder were



# GYNECOLOGY

## UTERUS

Meigs J V Benign Uterine Bleeding A Preliminary Report (in J Ob & G) 1927 v 35

In the clinic at the Massachusetts General Hospital certain cases have seemed to suggest that some patients with hypothyroidism or myxœdema may have a larger flow than normal at the menstrual period and that in consequence of poor thyroid function ovarian hypersecretion may develop with consequent menorrhagia. Destruction of the hypersecreting ovary may show the real cause a myxœdema.

In some cases uterine bleeding in young girl has been held in check by the use of thyroid extract and extract of the corpus luteum. In one such case hyperpituitarism or hypopituitarism seemed to be the causal factor.

It seems definitely established that patients with hyperthyroidism often have oligomenorrhœa or amenorrhœa and that removal of the hypersecreting gland may cause the return of the menstrual cycle to normal.

It seems definitely established that true thrombogenic purpura hemorrhagica is a cause of excessive uterine bleeding and that there is a group of patients with slight variation from the normal in the blood picture a history of petechiæ or black and blue spots and possibly a palpable spleen that have excessive uterine bleeding.

It seems definitely established also that there are other causes aside from the ovary and the uterus for benign menorrhagias and metrorrhagias.

L. L. CORNELL M.D.

Schiller Studies in the Etiology of Tumors I  
Cellular Carcinoma of the Uterus II Uterine  
in Fibroid (Lithic) Growth z Cellular d  
Geschwulste I Cellular m d Cellular II  
Lithic m m) 1 k f p th 1 1 1 1  
9 368

Despite the great value of animal experiments in establishing the origin of malignant growth the deductions from mouse experiments can be of only limited application to human cancers. The reason for this is that mature carcinoma has its origin in the prickly cell which is completely absent in the skin of the mouse. Furthermore in mice carcinoma always results from the denervation of a primary benign tumor while in man it is the result usually of denervation of an inflammatory process.

The practice of gynecology affords the best opportunity for the study of precancerous changes. It being possible to note here the changes in the epithelium resulting from the proximity and infiltration of malignancy. The author describes in

detail ten early carcinomata of the uterus some of which were discovered by accident. The conclusion from the study of these cases is that a precancerous stage cannot be established definitely. The transition from normal to cancerous cells is very sharp. The downward growth results from the proliferation of the tumor cells the lateral superficial growth from transformation and assimilation of the adjoining normal cells by the cancer cells. This transformation occurs so rapidly that it can be demonstrated only on the exact line of transition. These alterations which do not always lead to malignancy and therefore cannot definitely be called precancerous consist of degenerative nuclear changes with marked œdema nuclear vacuolization intra and para nuclear inclusion of granules as well as lightly red colored light refractive granules of different sizes in the protoplasm.

Schiller made a study of fibroids of the uterus at the University Gynecological Clinic at Vienna because of the report of von Krumbein in which palisading of the nuclei not only in fibroids but also in sarcomata was described. Von Vercays had previously described this phenomenon as pathognomonic of carcinoma. Schiller found isolated areas of palisading of the nuclei in almost every myoma.

The palisading is seen only when the muscle fibers are cut obliquely or longitudinally. The palisades are arranged thickest on both sides of the blood vessels the nuclear bands being at right angles to the course of the fibers of the blood vessels. As a result of amitotic nuclear division the cells of these nuclear bands are at first close together being separated only by a thin layer of connective tissue while in mature myoma they have developed into a broad layer. The fiber bundles and nuclear bands are forced by the limited space to deviate from the original direction of growth and to branch to undergo involution and to double back until the original structure is entirely lost.

Every fiber has as its protoblast a single myoblast from the large number of myoblasts in the uterine wall and consists of only slightly differentiated cell and cellular bands. These are the cells which during pregnancy undergo hyperplasia and hypertrophy and permit the physiological increase in the uterus. Since these structures can be stimulated by the normal physiological ovarian hormone it is also possible that the pathological stimulation of the hormone may lead to fibroid formation. It does not necessarily assume that there has been an inclusion of tissue through maldevelopment as taught by Cohnheim. Inflammatory changes which at the most can be but a supportive factor may also be eliminated in the etiology of fibroids.

GRAFT (G)

macroscopically as small yellowish tumors. A striking feature was the marked vascularization at the site of implantation. Older transplants were firmly attached to their surroundings especially their bases.

Microscopic examination showed that after two days the structure of the transplant was hardly discernible. All of the necrotic tissue was infiltrated by leucocytes. Only at the edges was there any intact tissue. This showed abundant mitoses with the red cells of beginning regeneration in places with an indication of tubular formations but without islands of Langerhans. Small blood vessels and fibroblasts proliferated into the transplant from the surrounding tissues.

Between the third and fifth days the transplant appeared to be completely infiltrated by leucocytes. These were already undergoing degeneration. Except for a narrow peripheral portion the transplant was entirely necrotic. In the connective tissue of the capsule there were newly formed red cells, some of them in tubular form.

On the seventh and eighth days a large number of regeneration cells appeared at the edge of the necrotic masses. The surrounding connective tissue appeared denser and the connection between the transplant and its surroundings seemed to be more intimate.

On the tenth and eleventh days the transplant appeared to be already shrunken in the necrotic por-

tion. The connective tissue of the capsule formed a dense fibrous ring and from it a very vascular connective tissue process penetrated into the central necrotic area. The entire transplant was connected with the capsule by delicate young connective tissue. The newly formed cells were much closer together than before and usually in tubular form. They were well preserved with nuclear mitotic figures only at the very periphery. Moreover, they showed signs of beginning degeneration with vesicular swelling, vacuolization, fatty degeneration and absence of mitoses. In isolated areas there were peripheral sprouts of the excretory ducts.

On the fourteenth day the transplant appeared still more shrunken and replaced by connective tissue. The connection between the transplant and its surroundings was therefore very intimate. The degeneration of the regenerate was more pronounced than before.

After twenty, twenty-two and thirty-three days there remained only a small central necrosis. Almost the entire transplant had been replaced by connective tissue. The entire regenerate was undergoing degeneration. It was infiltrated with leucocytes from the capillaries.

The original transplant therefore was rapidly destroyed. The regenerate developing from the periphery lasted for about three weeks and then also slowly died.

T. BLER (Z)

gonorrhœal disease than in streptococcal or tuberculous infection of equal severity

CAMEROV said that the value of surgical interference in chronic salpingo-oophoritis is evidenced by the almost entire absence of such cases from the multitude of semi-invalids frequenting health resorts. Before operation for chronic salpingo-oophoritis the cervix should be examined and if it is infected it should be treated radically. Usually it is removed with the corpus unless the patient is young. If possible healthy portions of diseased ovaries are transplanted. Adhesions are prevented by sharp dissection and raw surfaces covered with *peritoneum* or *omeatium*. There are many cases however in which excision of the fallopian tubes is all that is required. Hysterectomy should be avoided if the operation has been undertaken during the acute stage of the disease.

BLAIR BELL emphasized that the ovaries and the functions dependent upon them are of great importance to the individual and the race in the present state of evolution. It is possible in many cases of salpingitis if due consideration is given to the preservation of the blood supply to conserve the ovary in the normal position or in an adjacent position such as in the wall of the uterus. Pregnancy is then possible. By the conservation of the ovary with its blood supply the internal secretion and menstruation are always preserved. When it is impossible or unwise to conserve the ovary with its blood supply autoplasmic grafts should be practiced in women under 40 years of age. Pregnancy might follow a successful graft in the uterus.

SOTOVON said that in every case of sterility in which the man is not at fault and there is no contra-indication to the use of a test the fallopian tubes should be tested. When the test is negative for patency the abdomen should be opened. The prognosis for cure is best when the block is at the fimbriated end of the fallopian tube. While the results are not startlingly favorable at present we are justified in continuing our efforts to cure sterility by salpingostomy followed by the insertion of catgut. The procedure of bisecting the uterus is a definite advance in technique.

In the discussion GRAVES said that early appendicitis is an extremely common cause of pelvic peritonitis with later sterility caused by the gluing together of the tubal fimbriae and an investment of the ovaries with an organized tightly clinging fibrinous veil. In cases of sterility following septic abortion operation is often successful since here the process is extrasalpingeal. In sterility due to gonorrhœa only too frequently the proximal ends of the tubes are hopelessly obliterated and in spite of every reasonable conservative method of cure that is genuinely conceivable failure is the rule but success is sufficiently frequent to justify operation. In the tuberculous group restoration of fertility is hopeless and conservatism has no place. When the uterus must be sacrificed the ovaries are not conserved in fully matured women. There seems to be very little

difference in the postoperative results of surgeons who leave the ovaries *in situ* at hysterectomy and those of surgeons who remove them.

RIVETT advocated early operation in all cases of acute salpingitis in the catarrhal stage. In a certain number of cases of chronic tubal disease with no palpable swelling and only a slight lesion of the fallopian tube symptoms due to pelvic adhesions may demand interference years later. The operation in such cases may be most formidable. It is beside the point to remove healthy ovaries because they may develop ovarian cysts later.

HILLIPS stated that he removes the ovaries if the uterus must be removed. In cases of acute salpingitis he waits until the patient has had a normal temperature for two or three weeks before operating. For nearly twenty years he has treated gonorrhœa by packing the uterus daily with a 20 per cent solution of protargol in glycerine.

BRIGGS holds that many conservative measures in use as well as attempts to destroy the gonococci locally by the use of strong antiseptics are unsound and useless procedures. As a rule the surgeon errs in removing too little. Drainage is important. Briggs has found the results of salpingostomy in old standing tubal disease most disappointing.

MACLEAN has many times performed salpingostomy in cases of salpingitis with sealing but he could not report a single case in which there had been a succeeding pregnancy.

BERKELY doubts whether the benefits that accrue to a woman by having the ovaries left in are as great as some of the advocates of this procedure would lead us to believe. He operates in cases of acute salpingitis after the temperature has been normal for five days.

IVENS has treated sixty cases of gonorrhœal infection (forty four acute and sixteen chronic) with anti-gonococcus serum in amounts varying from 0 to 80 c cm. She first injects the fallopian tubes with serum after opening any pyosalpinx or ovarian abscess that may be present, moves out the abdomen freely with normal saline solution and closes the abdomen without drainage. She operates as soon as the diagnosis of the presence of pus has been made to avoid disorganization of tissue, permanent thickening and severe adhesions. The after treatment consists of rectal saline injections, the Fowler position and early and frequent purgation. The one death occurred in a case of acute gonorrhœal infection with appendicitis.

HENDRY reported 286 cases of inflammatory disease of the uterine adnexa treated in the university gynecological wards of the Glasgow Royal Infirmary. Puerperal infection was the presumptive etiological factor in over 90 per cent of the cases. Hendry does not as a routine perform major operations in cases of inflammatory disease of the adnexa in the acute or subacute stage but uses vaginal drainage. Seventy eight cases were treated conservatively during the acute stage and only seven required operation at a later date. Operation was

Struchan G I Radium in the Treatment of Advanced Carcinoma of the Cervix *J Obst & Gynec Bst Emp* 927 x xiv 291

The following conclusions are drawn from a consideration of ninety seven cases of inoperable carcinoma of the cervix

Radium is a most potent palliative agent and in a small proportion of cases the best curative agent for carcinoma of the cervix In considering the small number of cures it must be remembered that all of the cases discussed were advanced beyond operability

Apart from cure the relief of symptoms especially of hemorrhage and discharge is most marked in the majority of cases and this alone is sufficient justification for the use of radium

The effect of radium on a particular case of carcinoma cannot be foretold It may be brilliant or nil therefore the prognosis must always be guarded

There is no clinical or histological evidence that in a case reacting unfavorably radium has any effect in stimulating the growth of the tumor

Istula formation is a well recognized complication of advanced carcinoma of the cervix It can not be shown that radium properly applied predisposes to it

Radium can and will kill the cancer cell but only when the cell is directly exposed to the rays Therefore although the primary growth may be beneficially affected in all of the parametrial glands are unaffected and one of the main problems is improvement technique of application so that as many carcinomatous cells as possible may be brought under the full effect of the radium at once

In the discussion BERKLEY remarked that the reports on cases of carcinoma of the cervix treated with radium are very contradictory His results with radium have been very disappointing For many years up to August 1925 he had treated a large number of patients by inserting radium into the growth Beyond a temporary improvement his ultimate results in all cases except one were poor This case was a striking one He opened the abdomen with the intention of performing a radical hysterectomy but abandoned the idea because the rectum and bladder were so adherent that they could not be separated and the growth had markedly extended into the adjacent tissues Later radium was inserted into the growth Three years later the patient applied for the relief of a ventral hernia On vaginal examination there was no evidence of a growth and the uterus was movable When the abdomen was opened because of the hernia no trace of the growth was found and the bladder and rectum were quite free E L COVEL M D

#### ADNEXAL AND PERIUTERINE CONDITIONS

Boune A The Treatment of Acute Gonorrheal Salpingitis *J Obst & Gynec Bst Emp* 97 x x v 85

Whitehouse B The Expectant Treatment of Pelvic Inflammation *J Obst & Gynec Bst Emp* 107 x x v 90

Curtis A H Surgical Indications in the Treatment of Gonorrheal Lesions of the Uterus and Adnexa *J Obst & Gynec Bst Emp* 92 x x v 99

Cameron S J The Operative Treatment of Chronic Salpingo Oophoritis *J Obst & Gynec Bst Emp* 107 x x v 96

Bell W Conservation of Ovarian Function in the Surgical Treatment of Salpingitis *J Obst & Gynec Bst Emp* 927 x x v 113

Somons B The End Result of Salpingitis in Chronic Salpingitis with Special Regard to Pregnancy *J Obst & Gynec Bst Emp* 97 x x v 18

WHITEHOUSE advocates early operative treatment for severe acute suppurative salpingitis The operation of choice is salpingostomy but a fallopian tube that obviously can never perform its function should not be left After the operation the uterus is treated by frequent injections of glycine and protargol Final assurance should be obtained that the cervix and urethra are free of gonococci

WHITEHOUSE employs expectant treatment and subsequent surgical treatment at a time when it is safe He reports a mortality of 25 per cent Radical measures such as hysterectomy are seldom necessary when such treatment is employed By his method fertility is impaired though not destroyed and the social and marital functions remain normal He has been very hopeful during the last year in an attempt to limit the formation of pelvic adhesions and has found it very satisfactory

CURTIS does not operate upon patients with acute or subacute salpingitis Gonorrheal infection of the fallopian tube and adjacent tissues tends to produce a self limited infection The disease process so-called chronic cases is typically a re-infection Operation should not be employed for the eradication of tubal infection but should be reserved for the conditions which result from the bacterial invasion Adhesions of gonococcal origin are almost invariably amenable to smooth separation by blunt dissection with scissors Large omentoplasties afford a satisfactory covering for extensive raw surfaces in the pelvis which could otherwise remain denuded

CURTIS finds that a healed hydroalpin of moderate size sometimes causes least trouble if left undisturbed He has never been able to relieve salpingitis by plastic operations upon definitely thickened fallopian tubes but has made less seriously diseased tube intact by gently dissecting the magnified fimbriae with scissors Apparently the fallopian tubes may be relieved of occlusion by means of a flat needle with a needle-vent The ovaries should be preserved unless they are badly eroded or the circulation is impaired If one ovary must be sacrificed the remaining one should be resected In the presence of a fixed ovary with the indications for removal some satisfactory less radical surgery appears indicated in

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Williamson A C Pregnancy Following Thyroid  
ectomy *Am J Obst & G* 19 7 xi 190

The author reviews forty eight cases of pregnancy following thyroidectomy from the standpoint of symptoms treatment and the causes of the phenomena noted. The common symptoms were nervousness an unstable blood pressure restlessness constipation nausea and vomiting. The treatment consisted for the most part of definite rest periods in bed each day during the first three months. Two patients were kept in bed constantly for sixteen weeks.

Palpitation shortness of breath and fear were among the most troublesome features.

Thyroid preparations in doses of from to 1 gr twice a day seemed to be of value but frequently the patient became nervous and complained of headache while under this treatment and its temporary discontinuance was necessary. A simple preparation of iodine such as syrup of hydriodic acid fifteen drops every other day for the period of pregnancy together with calcium lactate in 5 gr doses seemed to be of aid but two patients reacted so poorly that the iodine was stopped.

All of the multiparae went through to term. Of the primiparae all but two went through to term. Of the latter one miscarried at three months and one died of eclampsia in the seventh month. The babies were affected in ten cases of toxic adenoma and twelve cases of exophthalmic goiter. The mothers of the infants complained of weakness nervousness and palpitation after the operation.

In every case in which there was difficulty with the baby the pregnancy and delivery occurred within two years after the thyroidectomy. In none of the cases had the mother recovered from the effect of the operation and in practically every case she had complained of the same symptoms before the operation although her condition may have been improved.

In the cases in which the baby was born with enlargement of the thyroid gland the mother's symptoms decreased in severity as the pregnancy proceeded.

In the cases of eclampsia the symptom came on suddenly with no warning. Two of the women recovered and one died. All three had an unstable blood pressure the least exertion or excitement caused a variation of as much as sixty points.

In conclusion the author states that no woman operated upon for thyroid disease should become pregnant for at least two years after the operation even when her symptoms have been alleviated.

E L CORNELL M D

Lennie R A Pregnancy Complicated by Cardiac Disease An Analysis of a Series of Eighty Six Cases with Particular Reference to the Results of Treatment *J Obst & Gynec B 1 Emp* 1917  
xii 331

The majority of pregnant women with cardiac disease whose cases are reviewed showed loss of compensation in their earlier pregnancies. This was especially marked in the first and second pregnancies the figures for which were approximately double the figure for the third pregnancy. There was a greater tendency for loss of compensation to occur in primigravida after midterm. Loss of compensation occurred in the greatest number of patients by the sixth month while in the other months its incidence was fairly uniform. The greatest strain upon the heart occurs toward the end of pregnancy.

Of the cardiac lesions complicating pregnancy mitral stenosis is most to be feared. Distress due to this complication appeared in twenty nine cases (50 per cent) by the end of the fifth month and in forty one cases (72 per cent) by the end of the sixth month. Mitral regurgitation is a much less serious condition. The most important factor in the causation of cardiac disease is rheumatic fever.

Of eighty two women 20 per cent had a normal full time delivery 18 per cent had a premature delivery and 54 per cent required interference on account of the gravity of their illness. The liability to premature labor or miscarriage is greatest in cases of stenosis. Nineteen patients died during the pregnancy labor or puerperium.

The induction of labor by bougies is disastrous the death rate being no less than 44 per cent. The dangers accompanying this operation in case of heart disease have long been recognized. One of the author's patients died at the time of delivery and another died later from sepsis. The mortality of the induction of abortion is 25 per cent and that of accouchement forcé 50 per cent.

The results obtained from abdominal section with sterilization (classical) have been exceptionally promising. Of the seventeen women subjected to this operation only ten (11 per cent) died although all were in an extremely grave condition. Three of them had been admitted for antenatal treatment on two occasions during their pregnancy. The average stay in the hospital was fifty days. The operations were performed on patients with auricular fibrillation precordial pain hæmoptysis and other symptoms of advanced disease. The anæsthetic was chloroform. Fibrin is contra indicated because of the susceptibility of the patients to pulmonary oedema.



continued up to and after delivery until a total of at least eighteen months of treatment has been administered and repeated in every pregnancy. The arsenicals should not be combined with mercury or bismuth but should be alternated with one of these drugs. The best results are obtained from salvarsan given before and during pregnancy. 85 per cent of the children of mothers so treated will escape infection.

The diagnosis and treatment of gonorrhoea are the same as in non pregnant women. Special efforts should be made to clear up the condition before delivery.

FitzGibbon reports on twenty two cases of cardiac disease complicating pregnancy and labor in 13,000 confinements at the Rotunda Hospital, Dublin. One was a case of fatal acute endocarditis in a primipara. Among the twenty one patients suffering from chronic valvular lesions there were four deaths a mortality of 19 per cent. Ten of the patients were primiparae. Of these five developed decompensation during labor but recovered. Of the five others who developed decompensation during pregnancy one died. Of the eleven multiparae three went to term and developed decompensation during labor but recovered. Of eight who developed decompensation during pregnancy three died.

From the point of view of the prognosis the cases are divided into three groups. In Group 1 are those in which decompensation occurs only as the result of labor. In the case the prognosis is good. It is best in the cases of primiparae and women under 25 years of age. In Group 2 are the cases in which the break in compensation occurs during pregnancy and is treated early. In these also the prognosis is good. In Group 3 are the cases in which the decompensation develops during pregnancy and is neglected until labor starts. In these the prognosis is poor.

When compensation fails in a primipara during pregnancy it can usually be readily re-established. In multiparae its re-establishment is not so easy. Women of the first group stand the subsequent labor well whereas those of the second group do not. Hence the author believes that after compensation is established a primipara should be allowed to go on to term though labor but multiparae should be delivered by section on combined with sterilization in the thirty-sixth week or if the decompensation develops before the thirtieth week by interruption of the pregnancy as soon as compensation is re-established. Labor should not be induced during decompensation and at other times is preferably replaced by section and sterilization.

The author has noted little difference clinically between the various types of lesions discussed.

E. L. K. M. D.

Massy R. D. Hyperemesis Gravidarum. N. J. Med. 97: 389.

It has been customary to classify the vomiting of pregnancy according to the supposed cause into three

types: reflex, neurotic and toxic. At the present time little treatment is given in cases of reflex vomiting although attempts are usually made to relieve malposition of the uterus and appropriate treatment is advised for gross lesions. The extent to which neurosis may influence severe vomiting of apparently toxic origin and the influence of toxæmia in every case of vomiting are often difficult to determine. So-called toxic vomiting has been attributed to various causes chief of which are (1) the absorption of foreign protein, (2) deficient secretion of corpus luteum or thyroid or suprarenal glands or hepatic insufficiency, (3) hypochlorhydria, (4) carbohydrate deficiency and (5) dehydration.

From the standpoint of treatment the cases are divided into three groups: those in which the symptoms are mild, those in which the symptoms are moderately severe and those in which the symptoms are severe. Most women who are nauseated and vomit will be relieved if treated early. Most of those who vomit severely allowed the condition to become advanced before they consulted a physician.

For the mild form of hyperemesis the patient is given daily at least five small dry meals consisting largely of fruit and carbohydrate, one after each meal and fluid between meals up to 2,000 c.c.m. daily. Sedatives may be used freely. Undue physical or nervous strains are to be avoided. In cases in which the gastric secretions are strongly acid alkalis may be used with good effect. In those in which there is decreased acidity dilute hydrochloric acid has recently been proved of value.

The group in which the symptoms are moderately severe is made up of cases in which little or no food or liquid is retained and there is loss of weight with dehydration. The treatment consists of rest in bed and the administration of 5 per cent glucose solution by rectum (Murphy drip). If improvement is not noted after several days of treatment glucose should be given intravenously also. Sodium bromide by rectum or phenobarbital by mouth or hypodermically may be administered. No food is given by mouth during the first twenty-four hours but no restriction is placed on the amount of fluid taken.

In cases of severe hyperemesis (so-called pernicious vomiting) fluid must be given to relieve dehydration and glucose administered intravenously to spare the liver and produce a diuretic effect. Glucose may be given in combination with insulin. If the acidosis is not relieved by glucose a solution of sodium bicarbonate may be given by proctoclysis or intravenously.

Although vomiting can be controlled by the measures in most cases of hyperemesis sooner or later a patient will be encountered whose vomiting cannot be controlled thereby and whose condition grows steadily worse. In such cases emptying of the uterus is necessary to save the patient's life.

Eight illustrative cases are reported including two cases in which the vomiting was due to complications not due to pregnancy.

Uncomplicated stenosis was responsible for the highest death rate (eleven deaths in nineteen cases 57 per cent). Thirty six per cent of the deaths were those of primigravidae.

In the discussion of this report HENDRY did not agree that caesarean section is the easiest type of delivery but stated that he regards it as very sound treatment in many cases. It is an excellent method of treating a patient who has had several pregnancies associated with failure of compensation at a progressively earlier stage. Its value in such cases lies in the opportunity it affords for sterilization. In the cases of primigravidae it may be the easiest way to terminate the pregnancy but Hendry has never used it. For the induction of anaesthesia Hendry employs chloroform.

PARMORE stated that in advance cases caesarean section is the best treatment as it saves the patient from the strain which is associated with even the easiest delivery. E. L. CORNELL MD

Munro Kerr J M Cardiac Disease in Relation to Pregnancy B J M J 1927 II 245

Rist E. Tuberculosis in Relation to Pregnancy B J M J 1927 I 247

Browne F J Venereal Diseases in Pregnancy B J M J 1927 I 50

FitzGibbon G Cardiac Disease in Pregnancy and Labor B J M J 1927 53

MUNRO KERR discusses fifty eight cases of cardiac disease in pregnancy from the standpoint of (1) the gravity of the condition (2) the distress manifested and (3) the treatment to be employed.

The mortality of this complication is high. Seven of the fifty eight patients died in the wards. Of these seven five had had prenatal care and three died undelivered. All of the patients who died had mitral disease and in two this was complicated by auricular fibrillation.

The danger signals are the usual signs of heart failure. Decompensation with aortic regurgitation is very serious. In mitral regurgitation the prognosis is good if the heart muscle is sound whereas in mitral stenosis the prognosis is unfavorable. According to Leanne the mortality in pregnancy complicated by these lesions is 7.8 and 4.5 per cent respectively.

The treatment is primarily a matter of co-operation between the obstetrician and internist. Medical measures should be tried first. If they fail after a trial of from seven to ten days interference is indicated. Death may result if interference is too long delayed or an improper method is used. The author does not favor the induction of labor preferring vaginal or abdominal caesarean section with sterilization in appropriate case. If spontaneous labor occurs forceps may be used. The services of an expert anaesthetist are advisable.

The puerperium must be watched carefully as death may occur three or four days after delivery.

RIST states that from 15 to 20 per cent of pregnant women lose their capacity to react positively to the

cutaneous tuberculin test and do not regain it until some time after delivery. This temporary loss of the allergic state probably means that the specific resistance to tuberculo is diminished.

The author is convinced that when tuberculosis is diagnosed on the basis of reliable criteria (e.g. positive sputum or X ray findings) pregnancy will invariably aggravate the condition. Favorable statistics are based on erroneous diagnoses.

Of fifty two women on Rist's hospital service in whom pregnancy occurred subsequent to the development of tuberculosis the condition of 13.3 per cent was unchanged but incurable and that of 84.6 per cent was made worse. Fifty per cent of these women were dead by the end of the second year. Of fifty five women first developing tuberculosis during pregnancy the condition of 10.9 per cent was unchanged and that of 89.09 per cent was made worse. Fifty eight per cent were dead by the end of the second year. Of sixty two women becoming tuberculous within six months after delivery the condition of only eight remained quiescent. Seventeen died within two years and seven died later. Many a tuberculous woman who was making satisfactory progress has died in account of an intervening pregnancy. Conversely the best test of the permanent healing of a tuberculous lesion is the ability of the patient successfully to weather a pregnancy and labor.

The author does not favor the induction of abortion in these cases. If it is done it should be resorted to only in the first three months and then only in exceptional cases. After the first three months interference is always harmful. Rist has seen tuberculosis aggravated by spontaneous abortion. Artificial pneumothorax though only about half as effective as in non-pregnant women is better. Of eighteen women thus treated before pregnancy fourteen are clinically well and four are dead. If a woman has been successfully treated by this method and has been clinically well for two years or longer pregnancy may be permitted provided the pneumothorax is maintained throughout the pregnancy and for six months after it.

BROWN states that syphilis is encountered in about 7 per cent of the cases in an ordinary prenatal clinic. A history of repeated unexplained abortions, stillbirths or neonatal death is suggestive. A strongly positive Wassermann reaction is characteristic of syphilis. The large pale grey placenta (found only in the fetus is macerated) suggestive of syphilis. Spirochetes may be discovered in the intima of the umbilical vein of the cord especially the fetal end. If the liver of the macerated fetus weighs one fifth or more of the total body weight the spleen weighs more than a hundred and fiftieth of this total the fetus is almost certainly luetic. The demonstration of spirochetes in the organs generally the liver spleen suprarenals and kidneys is absolute evidence of syphilis.

The treatment should be begun as early in the pregnancy as possible or before the pregnancy



Bourne A and Burn J H The Dosage and Action of Pituitary Extract and of the Ergot Alkaloids on the Uterus in Labor with a Note on the Action of Adrenalin *J Obst & G* 3c Brit Emp 1927 xxiv 249

The authors have investigated the action of small doses of pituitary extract administered during the first and second stages of labor recording the effect by a graphic method. A dose of two units may be expected to hasten the course of a sluggish labor provided it is not administered before the os is about one half dilated. A dose of two units may be given with safety at any stage if there is no mechanical obstruction.

The shortest interval at which any dose can be effectively repeated is one hour but often the influence of two units lasts longer than this.

In tests of the action of the separate ergot alkaloids it was found that tyramine has no value in obstetrics. Histamine in a dose of 20 mgm injected under the skin produces a powerful but brief effect; it appears to exhaust the activity of the uterus.

The specific alkaloid of ergot (ergotamine or ergototin) has a very prolonged action and appears to be an ideal agent for use after delivery. Extractum ergotae liquidum (British pharmacopoeia) does not contain the specific alkaloid and can have no therapeutic effect.

Adrenalin injected into a vein inhibits uterine contraction before delivery. Ether has a similar effect.

E I COR TELL M D

### PUERPERIUM AND ITS COMPLICATIONS

Burger P Articular Metastases of Puerperal Infection (*Le métastases articulaires puerpérales*) *G Ital Med* 1927 xv 33

Articular metastases of puerperal infection are comparatively rare being limited to grave cases of generalized puerperal infection—pyæmia or septicæmia.

Of the nine cases reported by the author all of which were fatal six were due to streptococcus infection one was the result of staphylococcus infection and one the result of a mixed infection. In one no bacteriological examination was made.

The metastasis is attributed to a bacterial embolus giving rise to the formation of an abscess with perforation directly into the joint cavity or dissemination of bacteria by way of the lymphatic vessels or provoking stasis with consequent penetration of the bacteria by diapedesis into the lymphatic vessels and thence into the joints.

In the majority of cases reported the metastases were multiple and occurred early in the course of the infection. Their appearance renders the prognosis grave. As a rule they follow obstetrical interventions made without proper precautions for asepsis. In three of the cases reported they developed following an abortion. Two of the abortions were criminal.

The treatment can be only symptomatic. When exploratory puncture reveals the presence of pus in a joint the cavity should be opened in cases of streptococcal infection. In cases of staphylococcal or other infection evacuation by puncture followed by irrigation with an antiseptic solution is often sufficient.

MINA A GILDER LEEVE

### MISCELLANEOUS

Neumann H The Fate of Eclamptic Women (*Ueb das Schicksal der an Eklampsie Erkrankten Frauen*) *Arch f G* 3c 1927 c x 89

This report is based on sixty women who were treated for eclampsia in the Women's Hospital at Eppendorf. After an interval of years thirteen complained of headache, twelve of impairment of memory, four of ocular disturbances, five of swelling of the legs and one of itching of the skin. Eight had an elevated blood pressure. In three cases the urine was cloudy and in three it contained albumin and casts. In subsequent pregnancies an edema of pregnancy was more common than a true nephropathy. In four instances there was a recurrence of the eclampsia.

After a time the changes in the capillaries which are characteristic of eclampsia completely disappear. The transition of eclampsia to chronic nephritis occurs either very seldom or not at all. The occasional persistent changes in the kidneys of eclamptics are apparently nephrotic changes in the tubules.

GEPPERT (G)

Young J. Recurrent Pregnancy Toxemia. *J. Obst. & Gynec. Brit. Emp.* 1927 xxvii 279

The investigations here reviewed indicate that in women who develop convulsive or non convulsive eclampsia there is a factor tending to cause placental damage.

In some of the cases probably the majority in which this occurs the pregnancy is rapidly terminated by abortion, accidental hemorrhage, premature delivery or stillbirth and there is no toxemia. Toxemia develops only when after placental damage the abortion or premature birth does not take place soon enough or quickly enough and a large mass of leuc or degenerating tissue is left within the uterus in immediate relation to the maternal blood stream.

The factors which cause placental damage may be local or general. A probably important acquired cause is infection such as chronic endometritis, metritis and cervicitis and local infection. As has been frequently pointed out the febrile temperature often associated with eclampsia is suggestive of an infective basis.

It is conceivable that the causes of the placental damage are not specific in nature and that they may be of several kinds. For example it is well known that a plural pregnancy may determine the development of toxemia. In the author's series three cases of eclampsia (6.4 per cent) and eleven cases of non convulsive toxemia (4.4 per cent) were cases of twin pregnancy.

The factor behind the arrested pregnancies in cases of toxemia acts in some way different from the syphilis of syphilis. In this connection it is interesting to note that whereas in toxemic cases characteristic placental lesions are found in syphilis the placenta seems to suffer no such characteristic damage.

Recognition of the high incidence of recurrent in true eclamptic toxemia and in cases of eclampsia of the considerable tendency toward recurring abortion and premature labor makes necessary a revision of our views regarding so called nephritic toxemia.

The distinction which has generally been drawn between the eclamptic and non recurrent toxemia and the nephritic and recurrent toxemia is shown to have lost its sanction. This statement does not apply of course to those comparatively few cases of antecedent kidney disease due to scarlet fever which differ distinctly from the specific pregnancy toxemia in which the nephritis is the secondary condition.

There is now considerable evidence for the view that the eclamptic and the recurring toxemias have a similar origin in the diseased placenta and that in both types the kidney lesion is secondary and often aggravated by the placental damage occurring in successive pregnancies.

The exact chemical nature of the poisons responsible for eclampsia is still undetermined.

E. L. CORWELL, M.D.

## LABOR AND ITS COMPLICATIONS

Hofbauer J. Hoerner J. K. and Olli E. K. S. The Nasal Application of Pituitary Extract for the Induction of Labor. *Am. J. Obst. & Gynec.* 1927 xi 137

In the nasal application of pituitary extract for the induction of labor the nose is first carefully examined with the aid of a nasal speculum and reflected light and is cleaned of any crusting or discharge. A small pledget of cotton of such size as to fit easily but snugly between the septum and the inferior turbinate is then prepared and after it has been moistened with 20 minims of pituitary extract is inserted under the anterior end of the inferior turbinate.

In the cases reviewed the first change noted was a marked increase in the fetal movements which almost routinely preceded the first uterine contractions. The latter began invariably within from one to five minutes after the application of the drug. These first contractions were timed and the fetal heart was auscultated at frequent intervals. When a contraction lasted longer than four minutes or the fetal heart showed untoward changes the pledgets were immediately withdrawn. The tetanic contraction then subsided in from one to five minutes and there was coincident complete recovery of the fetal heart. Subsequently rhythmic contractions alternating with periods of relaxation followed and usually in such cases no further administration of the drug was necessary.

Unless true labor pains set in within two or three hours the contractions gradually became shorter and weaker and the intervals between them became longer. Accordingly when it was evident that the effect of the first administration was wearing off the pledgets were removed and replaced by fresh ones containing the same amount of pituitary. In the majority of cases from one to three applications were required for the successful induction of labor but in a few cases as many as five doses were necessary.

The local condition of the nostrils is of great importance for a successful result. Any abnormal condition such as acute coryza, profuse lachrymation or chronic catarrhal inflammation militates against at orption. Even the normal accumulated output of mucus evoked by the presence of the cotton pledget becomes sufficient within one or two hours to cause a decided decrease in the resorption of the drug.

In fifty-four cases in which this procedure was used there was only one failure. When the cervical canal measures 2 cm. or more in length and the external os is tightly closed the chances of success are comparatively poor.

In cases of pre-eclampsia only 10 m. of pituitary extract are used in the first dose as the uterus is hypersensitive. Later if the patient proves less sensitive the dosage is increased.

E. L. CORWELL, M.D.

calyx was distinctly characteristic and may be regarded as a diagnostic aid if the pyelogram is employed. The objections to routine pyelography in renal tuberculosis are discussed at some length. The conclusion is reached that the procedure is rarely necessary, often unreliable and attended with danger.

O'Connor and Emmert review 336 cases in which pyelo-ureterograms were made and report the findings relative to congenital anomalies, variations in the normal hydronephros, tuberculosis of the kidney and ureter, renal neoplasms, renal and ureteral calculi, ptosis of the kidney, obstruction of the ureter and the differentiation of abdominal and retroperitoneal masses.

They conclude that pyelo-ureterography has proved an important diagnostic aid but is only one of the urological procedures necessary for an accurate diagnosis and should be used only in conjunction with anal, functional and bacteriological data. Normal pyelograms are often of definite value in differentiation and in the establishment of the prognosis.

ADOLPH HARTUNG, M.D.

Mandel J. V. Investigations with Regard to Permanent Cure After Operation for Renal Tuberculosis. A Report on the Value of Pure Cultures of the Tubercle Bacillus by the Loewenstein Method for This Purpose. (Ursprung u. Verbreitung der Tuberkulose nach Operationen u. nach dem Zweck der Untersuchung. Bericht über die Ergebnisse der Untersuchung der Tuberkulose nach Operationen u. nach dem Zweck der Untersuchung.) Zt. f. urol. 97, 1911, 39.

From his experience of two decades the author has come to the conclusion that only the surgical removal of the tuberculous focus in the kidney, i.e., nephrectomy, gives any assurance of a cure of unilateral renal tuberculosis. He believes we can speak of a cure only when the urine is found to be free from tubercle bacilli on repeated examination throughout a period of two years and that only when this is the case and renal function is normal can permission for marriage be given.

For the demonstration of the complete absence of tubercle bacilli from the urine, Mandel has found the method of Loewenstein of special value. This method is better than guinea pig tests; it reveals all strains of avian tubercle bacilli which are pathogenic to man but do not affect the guinea pig. Its use is of advantage also because the period of observation of the cultures is shorter, being usually only from three to four months and sometimes only one or two months before the culture becomes active. As previous to the making of the cultures the urine is treated with 15 per cent sulphuric acid which kills off all other bacteria, a microscopic examination is usually unnecessary when the characteristic crumbling white cultures appear upon the nutrient medium potato glycerine. If only non-characteristic cultures appear the cultures may be spread on a glass slide and stained by the Ziehl-Neelsen method to prove the absence of tubercle bacilli.

The author obtained a permanent cure in 175 cases of renal tuberculosis. The operations were performed at least six years ago. Severe bladder symptoms or contraction of the bladder persisting after a nephrectomy for renal tuberculosis are not necessarily due to tuberculosis. As a rule they are produced by a mixed infection and are to be treated in the same way as cystitis.

A prerequisite for cure is the prevention of soiling of the operative field. To this end the ureter is divided with a Paquelin cautery and into the carefully grasped ureter clamped off below a silk web catheter introduced and carbolic acid solution is injected until the first drop appears alongside the catheter. The edges of the wound being well protected with gauze, the fluid is then stripped out and the ureter ligated lower down and again divided. Tincture of iodine is also used for cauterization of the ureter. For extra safety the stump of the ureter is sutured to the skin. By the deep clamping of the ureter the cauterizing fluid is prevented from entering the bladder.

Ten cases are reported in detail.

ROSENBERG, Z.

Fommolt G. The Collateral Arterial Circulation of the Human Ureter (Über die collateralen Arterien des menschlichen Uters). Ztsch. f. Gyn. 97, 1911, 10.

The purpose of the investigations here reported was to determine why the human ureter is able to withstand extensive disruption from its bed, such as occurs in the radical Wertheim operation without resulting disturbances of its circulation with fistula formation. Von Haller found that there are three divisions of the ureteral circulation. The upper third of the ureter is supplied by the renal artery, the lower third by branches of the uterine or vesical artery and the middle third by the ureteric artery.

Fommolt studied the ureteral vascular system in forty-four injected specimens. In only four was there no branch from the renal artery. In two instances insufficiency of the injection was evidently responsible. In the two others there was instead a branch from a capsule artery. In three specimens it was possible to demonstrate a branch to the ureter from the spermatic artery, the ureteric artery was missing. In all of the other cases the artery of the ureter was found arising from the aorta, the common iliac artery or the hypogastric artery. As nutrient vessels of the lower third of the ureter it was possible to demonstrate fine branches from the vesical artery, the uterine artery and in six cases the median hæmorrhoidal artery.

Of special importance in preservation of the ureter is the fact that the nutrient vessels first divide just before they reach the ureter and then accompany the latter upward and downward outside its adventitia. From these vessels secondary branches penetrate the adventitia and anastomose with each other.

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

Oppenheimer L I A Discussion of Three Cases of Bilateral Kidney Calculi *Calif J Surg* 1927 90

In the Alameda County Hospital California 77 per cent of the cases of kidney calculi seen in the last five years were bilateral. Of five patients with calculi in the upper urinary tract who were treated at the Oakland Health Center Urology Clinic during the last twenty months two had bilateral stones.

In Case 3 of the three cases of bilateral renal calculi discussed by the author the roentgen examination was merely a corroborative measure. It was evident without it that the patient had renal calculi. The number, size and disposition of the stones were demonstrated by the film. In the two other cases the roentgen ray examination was essential to the diagnosis because of the vague nature of the symptoms.

In Cases 1 and 2 operation was not indicated. The kidneys would have been torn to pieces in the removal of the stones and the already reduced kidney tissue would have been destroyed.

Patient No 3 with multiple inaccessible calculi was sent to Braasch and was operated upon by Hueter under direct fluoroscopic vision twelve stones being removed.

In conclusion the author emphasizes the importance of early diagnosis and treatment of urinary calculi. If this is not done conditions such as occur in Case 1 and 2 may ensue. The X-ray should be used as a routine procedure when a pathological condition of the kidneys or ureters is suspected.

The third case illustrates the possibilities of manipulative removal of small calculi in the upper urinary tract. Usually it is only after weeks or months of intermittent effort that encouraging results are obtained.

In the surgical removal of multiple inaccessible kidney stones the use of the fluoroscope at the operating table is the best method of insuring complete removal of the calculi. This is possible because only the largest calculi because of the installation of the apparatus is expensive and because the services of a roentgenologist especially trained and experienced in this work are essential. *Lewis G. Smith M.D.*

Koenig E C X-ray Assistance in Solving Genito-Urinary Problems *Radiology* 1927 4  
 Kearns W M Pyelography in Renal Tuberculosis *Radiology* 1927 4  
 O'Connor J J and Remm St A The Value of Pyelography as a Diagnostic Aid *Radiology* 1927 5

Kearns adopting Paolenter's classification of genito-urinary problems into five groups discusses

the conditions which may produce the various symptoms. In infections of a non tuberculous type the size and shape of the renal pelvis and calyces may give a diagnostic pyelogram. Perinephric abscess may be demonstrated by a pyelogram when the abscess communicates with the pelvis or calyces. A diagnostic pyelogram may be obtained also in chronic pyelonephritis and renal tuberculosis. The presence of calculi is practically always shown in the pyelogram. Portions of the kidney can be demonstrated by the roentgen ray. Hydronephrosis and pyonephrosis produce characteristic pyelograms showing marked enlargement or distortion of the pelvis and calyces. Renal tumor may be demonstrated when the kidney substance is so distorted or invaded that the outline of the pelvis and calyces is changed.

In the bladder the final results of a chronic infection may produce an abnormal cystogram. Stone is usually demonstrated in the roentgen picture. Tumor may produce a characteristic cystogram with an irregular outline. The deformity caused by an adenoma of the prostate has a rather clean-cut outline whereas that caused by a malignant growth is irregular.

Kearns cites the opinions of numerous authorities with regard to the value of pyelography in renal tuberculosis. Because of the conflict of opinion he has refrained from using the procedure. He reviews the findings of a pyelographic study of fifteen freshly excised tuberculous kidneys supplemented by his report with photographs and roentgenograms. In several instances in which the lesions were in a very early stage the pyelogram showed no changes. The findings were often negative also in cases of the closed type of lesion in which there was little encroachment on the pelvis. In the first instance in which the pelvis is primarily and in the moderately advanced forms of the ulcer or a erosion type the characteristic changes are noted. The most constant finding in this series was the dilatation of the calyces with a ragged or fuzzy indistinct border frequently described as moth eaten. The descriptive tendency was quite constantly exhibited in the islets of filling that occurred when the continuity of the pelvis was destroyed and the injected liquid penetrated into the cavities in the parenchyma. The cavities varied in size. They appeared to be completely isolated at some distance from the pelvis or the connection with the pelvis was demonstrated by a narrow channel of filling.

Kearns concludes that the quite constant limitation of these defects to a circumscribed portion of the pelvis may be considered additional substantial evidence of tuberculosis. The localization of the lesion to one or two minor calyces or to a major

# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS ETC

Cooperman M B Gonococcus Arthritis in Infancy  
A Clinical Study of Forty Four Cases  
*Am J D Ch* 1927 xx 932

This report is based on an outbreak of gonococcus arthritis in a maternity hospital. Forty four cases came under observation. The first clue to the cause of the condition was obtained upon aspiration of the knee of a male infant 2 weeks old. Smears and a culture showed gonococci.

The patients were hospitalized for from one to three months. The general manifestations of the condition were of a septic nature with irregular elevations of the temperature from 99 to 103 degrees F. Seven febrile reactions in six cases were probably due to secondary infection. The nutrition of the patients was well preserved and there were no demonstrable visceral complications.

The blood showed a leucocytosis ranging from 11 600 to 27 800. The erythrocyte count ranged from 2 000 000 to 4 000 000 and the hemoglobin content from 40 to 80 per cent. The blood culture was positive in only one case. Aspirated fluid revealed gonococci only in the early stage of the disease.

The spine was involved in six cases, a single joint was affected in ten cases and two or more joints were involved in thirty four cases.

The local reactions were striking. The skin was glazed, violaceous and hot. The joint contours were obliterated by a marked periarthritic edema. The soft tissues were tumefied and of a woody resistance to palpation. Motion was markedly restricted by muscular spasm and distortions were extreme.

Periarthritis was present in 48 per cent of the cases, suppurative arthritis in 33.3 per cent and non-purulent synovitis in 11.8 per cent.

Flaccid paralysis due to infiltration and edema of the peripheral nerve trunks in relation to the involved joints was frequently observed. In many cases the condition was mistaken for poliomyelitis in the earlier stages.

Osteomyelitic foci within the shafts of the long bones, pathological dislocations of the hip, retardation in the appearance and abnormal development of the epiphyses and destructive changes in the acetabulum of an infected hip joint were found in eighteen cases. Spinal curvature developed in cases in which the hip joints were involved.

Ankylosis, a common terminal result in adult gonococcus arthritis, was not observed. Dislocation of the hip joint was undoubtedly the most disastrous complication resulting in most cases in permanent crippling.

Whenever practical, all inflamed joints were immobilized in metal or plaster of Paris splints. In cases with involvement of the lower extremities or the spine, a double plaster of Paris spica was applied from the toe to the axilla. The chest, abdomen, groin and buttocks were exposed by a large opening.

Intra-articular exudates were removed by aspiration or incision and drainage of the joint. Aspiration was done most frequently in the knee. It was repeated at intervals of from three to five days.

When puncture or other diagnostic method indicated the presence of local suppuration, the joint was incised and drained. Following the arthrotomy, it was covered by a gauze dressing kept moist with sterile salt solution and kept warm by means of an incandescent lamp. At each dressing the cavity was irrigated with warm boric acid solution. The results obtained in these cases were gratifying. Damage to the joints was practically nil. The treatment was supplemented later by diathermy, complete function being obtained.

As no beneficial results were apparent from the use of auto-enous or stock vaccines, this therapy was discontinued after a month.

Foot drop and wrist drop, contractures of the knee and elbow and pathological dislocations of the hip joint were the most troublesome of the sequelae. No permanent damage resulted from involvement of the peripheral nerves.

The treatment of dislocation of the hip was instituted when the child was 18 months of age. Because of difficulty in manipulation and because of the frequent changing of the cast necessitated by swelling, the results were disappointing. In practically every case the dislocation recurred.

Later open operation was attempted. It was then found that the head of the femur was deformed and the acetabular cavity was filled with scar tissue. Thus far the results of open operation have been more successful than those of closed manipulation.

ROBERT C. LONGERMAN, M.D.

Brailsford J F Roentgenography of the Spine  
*Am J R* 1927 xii 4

By modern technique, satisfactory roentgenograms of the spine in the lateral projection can be obtained. The author reports in detail three cases in which such roentgenograms added materially to the diagnostic value of the roentgen examination.

In one, a foreign body in the lower part of the neck was repeatedly localized incorrectly in anteroposterior exposures made stereoscopically and by localization technique. Lateral exposures subsequently showed its exact position and led to its removal. In the second case, spondylolisthesis was incorrectly diagnosed until the lateral view of the

For more exact proof of the function of these vascular anastomoses the author injected gelatin of different colors into the renal and hypogastric arteries. He found a mingling of the two colors in the primary and secondary branches of both vessels. He then tied off the artery of the ureter and injected the aorta with red lead gelatin. In spite of this the entire vascular system of the ureter even its middle third was well filled. Finally he was able to inject the entire arterial system of the ureter from one artery either the renal or the hypogastric.

In Frommolt's opinion these findings demonstrate that interference with one or several ureteral arteries does not harm the nutrition of the ureter.

The influence of stripping of the ureter on its peristalsis was studied in experiments on dogs. No permanent influence on either the peristalsis or nourishment of the ureter was noted. WILLE (G)

### BLADDER URETHRA AND PENIS

McCarthy J F and Ritté J S. Suction as Applied to Urological Cases at the New York Postgraduate Hospital. *J Urol* 1927 xvi 211

The authors have devised for postoperative bladder cases an apparatus with which they are able to apply satisfactory suction to from one to several patients at a time. Water suction is produced by an electrical suction pump. Ways of guarding against accident have been worked out and the usual type of suprapubic drainage tube has been improved. The parts of the apparatus are described with the aid of drawings and the technique of the use of the apparatus is given.

In urological cases suction for drainage is as great an asset as careful pre-operative preparation. By the method described the length of time the patient is obliged to remain in bed is shortened his comfort is increased during his stay in the hospital and his recovery is hastened. JOHN G CHEETHAM M D

### GENITAL ORGANS

Da la E. A Distensible Bag for Hemostasis and Drainage Following Penile Prostatectomy. *J Urol* 1927 xvi 1

As hemorrhage is an important factor in the mortality of prostatectomy careful hemostasis both during and after the operation is imperative. The author describes a distensible hemostatic rubber bag he has devised for use following penile prostatectomy. He discusses the technique of the operation with regard to the methods of hemostasis and the introduction of the hemostatic bag.

In 100 consecutive cases in which the penile prostatic bag was used there was only one case of serious delayed hemorrhage. In the last sixty-four consecutive cases additional gauze packing at operation was considered necessary only once but was used ten times. There have been no complications traceable to the use of the bag and the control of hemorrhage has been very satisfactory.

JOHN G CHEETHAM M D

Campbell M F. Hydrocele of the Tunica Vaginalis. A Study of 502 Cases. *Surg Gynec & Obst* 1927 xlv 9

Campbell reviews 502 cases of hydrocele of the tunica vaginalis. The cause of the condition is usually an inflammation and very often an unsuspected tuberculous lesion in the scrotum.

The surest diagnostic aid is transillumination but in a few cases this will fail. The main symptoms are usually pain and swelling of the scrotum.

Tapping occasionally effects a cure in children but is seldom curative in adults. The best procedure consists in opening the sac, trimming off the redundant part and then everting the sac.

The anesthetic of choice is local anesthetic. The prognosis is good. The average length of hospitalization is from six to nine days. ELMER HESS M D

joint For physiological and pathological regeneration function is of the greatest importance The primary consequences of an injury to a joint are pain muscular contraction loss of elasticity and plastic processes Secondary changes are destruction of cartilage the formation of connective tissue fibrocartilage with islands of hyaline adhesive obliteration of the joint space deformity of the ends of the joint blocking by osteophytes and shrinkage of the capsular ligaments

In a study of regeneration we find much that is contradictory in the cartilage the ends of the joint the capsule the ligaments the interarticular disks the fatty bodies and the joint cavity In experiments on animals a slight contamination gives better results than a completely aseptic operation Inflammation and chemical irritation play a rôle in regeneration

In the diagnosis of injuries and diseases of the joints the roentgen ray is an important aid A particular joint technique must be used In addition to fluoroscopy roentgenograms made not only in the two usual positions but also obliquely are necessary to determine the depth of foreign bodies and loose bodies and the presence of isolated foci Stereoscopic exposures or the injection of contrast material or gas may be of great aid Auscultation endoscopy blood analysis (sedimentation rate for differentiating between inflammatory and degenerative processes etc) the hydrocortisone concentration the use of tuberculin and excision of the capsule may be of value It is of great importance to determine the presence of a latent infection and the behavior of the joint under anesthesia

In determining the indications for operative treatment the surgeon must distinguish between a healthy joint with local mechanical injury and a joint that is severely damaged in its entirety Exploratory opening of the joint is to be avoided so far as possible Of great importance is the decision as to the right time for operation Increased osteoplastic tendency (atrophic phase) roentgen control of the osteoblogical curve and the patient's age and social status must be considered The operative procedure must be planned beforehand It must be decided whether the joint itself or some other member of the kinetic chain shall serve as the point of attack and whether the intervention shall be intra-articular or interarticular operative or non-operative

The following basic types of procedures are enumerated: restitution of form and function sacrifice of a diseased joint and planned destruction of an anatomically sound joint which on account of defective function of the active associated members of the chain is worthless Besides these there are the following subtypes (1) the removal of mechanical disturbances and the correction of false positions (traumatic injury) (2) measures to restore the lost security of movement (3) the removal of loose bodies (4) the treatment of acutely inflamed joints (5) the treatment of chronically diseased

joints (6) the combating of chronically or periodically recurring discharges (7) ankylosis arthroplasty (8) arthrodesis (9) extirpation of joint tumors (10) improvement of form or position (deformities) (11) para-articular correction in disease conditions to restore lost motion (pseudarthrosis) or to improve malposition (osteotomy) and (12) operations on other organs of the body (endocrine glands) to obtain a reaction on the joints

With regard to the general technique Pavri states that the choice between inhalation narcosis and conduction anesthesia (segmental anesthesia is impractical) must be made on the basis of the individual case If the operation is not done in a bloodless field careful hæmostasis is necessary Flaps of synovial membrane or fat pedunculated or free are of value for hæmostasis The burying of large foreign bodies and particularly metal foreign bodies in or on the joint is to be avoided if possible on account of the danger of producing irritation of the synovial membrane arthritis deformans and necrosis with expulsion of the foreign body into the joint cavity When the use of such a foreign body is unavoidable a convenient extra-articular method for its removal should be planned Non-rustable steel is the best material The fixation should be done to the cortex For sutures in joints catgut is best Plugs should be used only in tuberculosis Dead binding material should be replaced by living tissue

The different biological reactions of bone and cartilage to irritation are discussed Care must be taken not to injure cartilage The operation must be performed with a delicate touch peeling off of the periosteum and superfluous exposure of bone are to be avoided In aseptic cases no drainage is necessary The capsule should be sutured in layers and structures which have been loosened in osteoplastic work should be properly refastened Modern operations on the joints often require a method other than the typical resection if they are to result in the preservation increase or regaining of mobility of the joint The best approach is through a transverse S-shaped or flap incision Buttonhole incisions are to be avoided In doubtful cases the operation should be begun with incisions that may be extended In local disease of the joints access should be had to the bursa The muscles and nerves must be spared Releasing of the belly of a muscle separation of tendons and Z-shaped division of the latter are permissible Osteoplastic temporary closure of the joint is to be recommended and is a principle that may be extended Openings that damage the cartilage are to be avoided Articular ligaments should be preserved when possible Too extensive deflections are associated with the danger of causing necrosis In joint suppurations a departure from the rule is necessary

Great attention must be paid to the after-treatment In general a medium position is preferable to the final position (semiflexion) The shoulder is an exception When the capsule is well preserved

spine was obtained. In the third case an obscure lesion was shown by characteristic erosions along the front of the bodies of the lumbar vertebrae to be an aneurism of the abdominal aorta.

These cases demonstrate that in the investigation of pathological conditions of the vertebral column it is essential to take anteroposterior and lateral roentgenograms in every instance. As a general rule more information is obtained from the lateral than from the anteroposterior roentgenograms.

ADOLPH HARTUNG, M.D.

Galeazzi R. A Clinical and Experimental Study of Lesions of the Semilunar Cartilages of the Knee Joint. *J. Bone & Joint* 15: 197, 1915.

Dissections and experiments on the cadaver and observations at operation have convinced the author that there is a close connection between the semilunar cartilage and the crucial ligaments both anatomically and functionally.

The mechanism of rupture of the cartilages usually accepted does not explain many of the lesions. The tear of the internal meniscus near its anterior end is explained of course by the pull of the internal femoral condyle against the counter pull of the tibial condyle in inward rotation of the tibia with the knee a trifle flexed, but it is not clear how the same tear may sometimes occur with rotation in the opposite direction. In rupture of the anterior horns of both cartilages may occur in the same injury or how both horns of the same meniscus may occur at once.

In careful dissections the author has found strong fibrous bands connecting the menisci with the crucial ligaments in such a way that stretching of these ligaments might cause tearing of the menisci. The crucial ligament and semilunar cartilages thus seem to form one functional unit which is liable to derangement when motion occurs beyond physiological limits.

The greater frequency of lesions of the internal cartilage is explained by the fact that a firm band connects the apex of this cartilage with the anterior crucial ligament and it is this ligament which bears most of the strain in about 15 degrees of rotation.

In the author's opinion injuries of the crucial ligaments coexist with cartilage lesions are frequently not recognized because of inadequate opening of the knee joint. It has been shown by experiments on the cadaver that complete tearing of the crucial ligaments often accompanies rupture of the cartilage.

WILLIAM A. CLARK, M.D.

Morton D. J. Metatarsus Atavicus. The Identification of a Distinct Type of Foot Disorder. *J. Bone & Joint* 15: 97, 1915.

Metatarsus atavicus is manifested by unusual shortness of the first metatarsal as compared with the length of the second and by tenderness on deep pressure under the second metatarsal-cuneiform joint.

The subjective symptoms are of little value because of the hereditary nature. There is usually

indefinite pain or discomfort in the front part of the foot especially after prolonged standing or excess exercise. This pain may be burning in character in the early stages but after a callus has developed under one or more of the metatarsal heads it becomes more acute and later changes to a dull ache.

Physical examination usually shows the second toe to be longer than the great toe. Viewed from below the ball of the great toe seems to be set back on the foot. A callus is usually present under the ball of the second toe. The characteristic clinical sign is tenderness on deep pressure under the middle cuneiform and the base of the second metatarsal.

This shortness of the first metatarsal is probably an atavistic tendency since the human foot has evolved from a grasping type of appendage in which the first digit was decidedly shorter. The condition seems to be more prevalent in women than in men and is never encountered prior to early adult life.

When the second metatarsal is longer than the first walking stress falls more heavily on the second. Anatomically the proximal or cuneiform articulation of the second metatarsal is not adapted to this strain. The vertical diameter of the joint is only half that of the corresponding joint at the proximal end of the first metatarsal and is very poorly protected against hyperextension. The symptoms result from irritation around the second metatarsocuneiform joint. The filaments of the internal plantar nerve may be irritated and cause referred pain in the front part of the foot.

The treatment should be directed against (1) the improper distribution of weight on the heads of the metatarsals and (2) the strain of the second tarsometatarsal joint. It may be necessary in some cases to insist upon complete rest until the hypersensitivity of the irritated tissues is overcome. More of the weight should be transferred to the first metatarsal. This may be done by acquiring a slight toeing out habit. A lift of leather and felt or in extreme cases of metal should be placed in the shoe beneath the head of the first metatarsal. This should extend just beyond the great toe joint and should be just wide enough to support the first metatarsal alone. It should have sufficient thickness to cause the first metatarsal to be efficient in bearing the body weight and of sufficient length to act as an extension of this bone in the leverage action of the foot. Radical surgery is not indicated.

WILLIAM A. CLARK, M.D.

## SURGERY OF THE BONES JOINTS MUSCLES TENDONS ETC

Payr. The Present Status of Joint Surgery. *Dtsch. Wochenschr.* 41: 1915.

With regard to the normal and pathological physiology of the joints the author emphasizes the importance of the joint as a passive rather than an active link in the kinetic chain. He calls attention to the sensory and sympathetic nerve supply of the



even of these cases there was a complete cure or improvement bordering upon cure. At the present time a diagnosis of disease of the patellar cartilage cannot be made with certainty. The most dependable sign is a grating when the patella is pushed to one side. The roentgen ray findings described by Haglund—depression and a cortex like thickening of the bone on the under surface of the patella—are too uncertain to be of value. The good results of the operation should encourage the more frequent use of surgical treatment but only when long and careful conservative treatment has not given the desired result.

MAU (Kiel) discussed arthrodesis of the ankle joint by temporary extirpation of the talus. He has proved the value of this method. The talus is extirpated and after the removal of its cartilaginous surface is replaced. The resulting ankylosis is fibrous but functions well. Mau reported two cases illustrating them by roentgenograms which demonstrated the gradual resorption of the talus in a period of two years. The operation should not be under taken when the patient is under 15 years of age but for patients over that age is a good procedure. The foot must remain in a plaster-of Paris cast for six months and in a splint boot for two years or longer.

KEYSER (Berlin Lichterfelde) discussed unilateral plastic repair with fat in the mobilization of joints. In cases in which one of the surfaces of the joint was in good condition he removed the other and covered it with fat. By this means he obtained good results in three joints—a knee an elbow and a hip—which persisted as long as the patients were under observation (three and four years).

KLAPP (Berlin) presented a colored film showing the removal of the meniscus from the knee joint (meniscus bipartitus).

SEELIGER (Freiburg) pointed out the importance of determining the hydrogen ion concentration of joint effusions. He discussed the question as to whether and when a change in the joint lubricant leads to a change in the ends of the joint in the sense of arthritis deformans or the formation of free bodies. The hydrogen ion determination helps less in distinguishing between acute and chronic joint discharges than in determining whether the discharge will lead to the precipitation of synovial colloids and changes in the ends of the joint or whether it will probably be wholly resorbed without causing changes in the interior of the joint. The method used in determining the hydrogen ion concentration is of little importance but the determinations must always be made under similar conditions as the values must be comparative. Heretofore such investigations were of only scientific interest but eventually they may become of practical value in the treatment of joint discharges.

AXHAUSEN reported new observations on the origin and result of necrosis of the epiphyses. He exhibited a series of specimens belonging to Pick (Friedrichshain) which showed anemic infarction in

the bone such as is observed in the spleen and kidney. This condition has been disputed by others. There was no indication of trauma or inflammation. Axhausen believes that these specimens furnish new support to the theory of the embolic origin of epiphyseal necroses.

HEDRI (Budapest) stated that in the treatment of infected joints we have returned to antiseptics. This consists in the introduction of the antiseptic solution into the closed joint cavity if possible. New antiseptics are constantly being recommended. The best antiseptic has been and still is camphorated phenol. Its introduction does not lead to arthritis deformans. Experiments and later examinations show that the surfaces of the joint remain smooth. Hedri has treated thirty eight cases of joint emphysema and eight cases of joint inflammation prophylactically with camphorated phenol. Twenty two of the joints have complete mobility, seven healed with ankylosis and two were destroyed by sepsis.

FREUND (Osnabrueck) discussed the late results of hip-joint modeling in osteochondritis coxae juvenalis. Re examination of three cases showed that in one the desired result was not obtained but in the two others one of which was under observation for eight years the result was good. An osteochondritis which heals with marked deformity of the head of the joint must be operated on. If it is not treated surgically irreparable defects will appear later. However the operation must not be done in the early stage nor before the end of the period of growth.

BURCKHARDT (Marburg) reported statistics on all knee cases in the Marburg surgical clinic. Two hundred and twenty five cases of chronic knee diseases were treated. Of these forty three were tuberculous. Excluding those of traumatic origin (chondromalacia, free bodies, meniscus injury) only thirty three were certainly or probably non tuberculous. The latter were cases of simple chronic synovitis. Some of them were very problematical. In a number of cases the proof of the non tuberculous nature of the disease was obtained by exploratory arthrotomy.

BRANDES (Dortmund) spoke on the reduction of congenital dislocation of the hip. He stated that the central position of the head is not the correct one. The center of the acetabulum is opposite the Y cleft only in infancy. Later the head usually moves somewhat downward and the acetabulum lies beneath the Y cleft (demonstrated by roentgenograms). In five of 119 cases Brandes placed the head too low in nineteen in the center and in the remainder in the ideal position.

HAEBLER (Wuerzburg) called attention to the fact that in the determination of the hydrogen ion concentration the carbon dioxide tension must be taken into consideration. He is of the opinion that in arthritis deformans the reduction in the alkaline reaction of the synovial fluid is not primary but secondary.

and there is no contracture extension is unnecessary. Wire loops are less objectionable than nails or clamps. In from three to five days after the cessation of mechanical disturbances the joint may be released. In cases of joint fracture the rest period must be somewhat longer and in cases of arthrodiesis considerably longer. Earlier resumption of movement in cases of joint fracture is one of the chief advantages of operative synthesis. Bloody effusions with slow resorption should be tapped. Hyperæmia and mechanotherapy the care of the muscles and the effect of sports are discussed. Sportsmen should spare the joint for a considerable time.

The exact final position of arthroplasty is emphasized. Weight is to be attached to the extension apparatus for forty-eight hours. Sometimes a combination of extension and a plaster cast is of value. Passive and active movements should be begun after the healing of the wound usually after the tenth day. Forceful movement is harmful. If mobility does not return there is something wrong (slight infection, insufficient removal of hindrances or an error in the technique or the after-treatment). After all reconstructive operations performed on the lower extremities weight bearing is to be prohibited if there is atrophy of the bone. Since the results of a plastic operation will not be fully evident before two years' patience is necessary.

Moist and dry synovitis following joint operations and irritative conditions are considered. Under treatment antiseptics phenol camphor irritants deep roentgenotherapy, and synovectomy are mentioned. In the adhesive form of synovitis there are similarities to peritoneal adhesions. Constitutional influences the excision and plastic repair of the capsule and stiffening of rebellious joints are discussed.

In a special section the author speaks first of closed injuries of joints. In joint fractures a non-operative attempt is permissible if the final operation is to be done. The statement that the eighth day after the injury is the best time for operation is true for the diaphysis but not for the epiphysis. The operative procedures for the patella and olecranon are the only ones that have won general recognition. Entirely loose fragments should be removed. Fixation fractures an attempt at reduction may be made. For fracture of the neck of the femur Whitman's procedure is recommended. In pseudo-thromboses may be used or a Lorenz bifurcation or a Schanz osteotomy may be done. Dislocations often demand operative treatment such as resection and arthroplasty.

Internal injuries of the knee and the pathology of the menisci are discussed at somewhat greater length. The lateral ligaments should be sutured or repaired plastically with the use of the semitendinosus. The crucial ligaments have the power to regenerate. With regard to injuries of the meniscus the removal of the suture is discussed. When disturbance of the meniscus is certain a transverse anteroposterior incision of

the capsule as far as the lateral ligament should be made when necessary this may be enlarged by an incision behind the lateral ligament. In uncertain or difficult cases the author's median S-incision is best. For the external semilunar cartilage this has been modified by Kuettinger to a lateral S-incision.

Chondropathies partial necrosis loose bodies (in the removal of which the bed also should be removed) and discases of the fat bodies which seldom require excision are discussed briefly. Chronic effusions in the upper recess of the knee joint following trauma are treated by the excision of a synovial sac. The various methods of treating recent and habitual dislocations of the shoulder and patella are described and cases are reported. The cause of snapping knee is usually a dislocation of the lateral meniscus. Amphiarthrosis and flail joint often require arthrodesis.

In open injuries of joints excision of the soft parts and suture of the capsule is the rule. Of 661 such injuries 600 healed by primary intention. Antisepsis prophylaxis is discussed. Infectious arthritis calls for wide opening only when the joint is destroyed. Fumigations and irrigation or drainage at the right spot are often sufficient. In acute gonorrheal inflammation Bier's passive hyperæmia or an exploratory puncture is necessary. Chronic and infectious arthritis and granulation tumors are mentioned briefly. In the chronic non-infectious arthritis of primary and secondary arthritis deformans an extensive plastic operation (in the case of the hip Hildebrandt's modelin arthroplasty) and in hemiarthrosis roentgen ray treatment come under consideration. The osteotrophopathies and chondrotopopathies of Perthes Kohler Kienboeck and others do not require operation in the early stage. In Payr's opinion they do not originate in blood emboli.

With regard to ankylosis the question of mobilization is touched upon briefly. Particular care is necessary in tuberculous joints. Mention is made of the fact that it is sometimes more difficult to stiffen a joint than to render it movable.

Regarding tumors of the joints Payr points out that carcinoma metastases in the neighborhood of a joint may be mistaken for arthritis.

In conclusion congenital deformities (dislocations defects ankylosis and contractures) are discussed.

Following Payr's paper LAEWEN (Marburg) discusses operation for chondropathies of the patella. He stated that he had already shown that the cartilaginous changes in patellar chondropathies correspond histologically to those of arthritis deformans and those that are frequently present in the patella in advanced age. It is therefore justifiable to ask whether the operative extirpation of cartilage is preferable to the modelin operation in completely developed arthritis deformans. This question has not been answered definitely as yet. Laewen reported the results in thirteen cases of operations performed from two to three and a half years ago. In

valuable not only as a mean of preventing deformity but also as a means of diminishing the activity of inflammation.

He cautions against fixing any joint in an extreme position. In cases with severe muscular spasm, tenotomy or partial neurectomy may be done. In the treatment of arthritis the relief of the pain is the most important object. All of the methods mentioned may help toward this end but often fixation of the joint by operation is necessary.

First among the surgical method used to improve function is manipulation. This is done to correct an existing deformity or to increase the range of motion in a joint. Manipulation to increase the range of motion is safe only during quiescence of the disease.

In certain cases the removal of osteophytes and trimming down of the margins is of value. Arthroplasty for arthritis must still be considered in the experimental stage.

HOWELL recommended the surgical treatment of difficult cases.

Low discussed cases of multiple arthritis following dysentery.

ROBERT C. LOVERGAN, M.D.

Kroh F. Ligament Capsule and Cartilage Section After Fastening of the Head of the Humerus with Strips of Fascia (Ba 1 K p 1 v d Kn rp 1 7 Jahr nach at ttr h bte fe 1 g des Ob r m k p f s d ch t s c e t fe ) Z 1 M f Ch 927 1 844

The author reports the case of a 28 year old patient who nine years previously sustained a dislocation of the right shoulder. As this recurred several times intra articular fastening with strips of fascia after the method of Joseph was done a year later. Further recurrence led two years ago to the formation of a new ligament from strips of periosteum from the tibia after the method of Katzenstein. As the dislocation then again recurred the patient requested operative stiffening of the joint and this was done.

The strips of fascia which were found at the operation connecting the upper external tuberosity of the humerus with the rim of the glenoid cavity formed a tense strand about 4 mm thick which resembled a tendon. The synovial membrane was intact and showed no trace of inflammatory reaction. The normal joint cartilage showed no trace of a secondary deforming arthritis.

The objection hitherto raised against intra articular fastening—that in the course of time the transplanted ligament will be resorbed and a secondary deforming arthritis will result from foreign body irritation—was entirely refuted in this case. Not only did the joint remain normal but the transplanted fascia was changed into a tendonous structure.

DEUS (Z)

Campbell W. C. The Stabilization of Paralytic Feet. 4m J S t 1971 6

The operation which is the subject of this article has become generally known among orthopedic

surgeons as Campbell's bone block. It is done to prevent foot drop from infantile paralysis and other cause. The technique is as follows.

The posterior aspect of the astragalus, the ankle joint and the superior surface of the os calcis are exposed through an incision parallel with the tendon of Achilles. If the tendon is contracted a tenotomy is done. The posterior wall of the astragalus is chiseled off and a cavity chiseled out of the top of the os calcis. A bone graft from any part of the skeleton preferably of spongy bone is then sunk in the cavity and allowed to project upward behind the ankle joint. Chips of bone from the os calcis are piled on top of the graft, the mass being built up behind the articular surface of the tibia. The soft tissues are then sewed snugly over the bone fragments and the foot is put up in a plaster cast at 90 degrees.

This operation differs from all others for the same purpose in that no suspension of the foot by tendons or silk ligaments is attempted.

In the past five years Campbell has performed it in 13 cases. When necessary the calcaneo astragalar joint was fused to correct lateral deformity of the foot. In some cases it is necessary to fuse also the calcaneocuboid joint. After such fusion operations the denuded bones should be approximated snugly together to prevent the formation of dead spaces. After three weeks it is wise to remove the cast and to determine by roentgenogram whether the bones are in close apposition. If they are not they can still be forced together under anesthesia and a new cast applied.

The indications for the operation are simple foot drop, partial foot drop in which the mid tarsal joint is usually stable, rigid equinus, equinovarus, equinovalgus, flail foot in which it is indicated as an adjunct to stabilization of the mid tarsal joints, tendon transplantation especially of the extensor longus digitorum to the tarsal region and spastic contracture of the tendon of Achilles. It is seldom indicated before the eighth year of age.

Of 104 children treated by this method seventy six were re-examined. Of the latter seventy one showed the bone block effectively preventing plantar flexion.

Failure of the operation may be due to too early discharging of the cast, trauma to the tibia causing union of the graft with that bone and resulting in stiffness of the ankle and tetanus infection in children who have gone barefooted.

Of 69 adults subjected to the procedure eighty six were re-examined. A successful result was found in eighty three.

The result of the operation is considered definite in six months. In some cases in which the roentgenogram showed sufficient bone growth the block was not effective because of incomplete union or union with wrong contact.

As is true of all other operations for paralytic feet the chances of success increase with the patient's age.

BREITLAENDER (Rostock) reported an unusual case of osteochondritis dissecans in the ankle joint. The diagnosis made before the patient entered the clinic was tuberculosis.

WITTEK (Graz) cited a report of the experiences in the Accident Hospital of Graz with regard to injuries of the crucial ligaments which was published in the *Deutsche Zeitschrift für Chirurgie* (Vol. cc p. 491). The material with which this report deals has since been greatly increased and permits the conclusion that the torn crucial ligaments do not always regenerate of themselves. This was shown in the case of a patient who refused to allow a plastic operation and who remained under observation for seven years. The anatomical findings at operation also make the spontaneous regeneration appear unlikely when only a small remnant of the anterior crucial ligament remains. Important for the nourishment of the crucial ligaments and hence for their regeneration is the arterial supply which radiates chiefly from the artery genu media in the popliteal space. In tears of the anterior crucial ligament it is often sufficient to suture the anterior remnant of this ligament to the posterior crucial ligament. From experiments on the knee joints of sheep it appears that not only restoration but also a differentiation of the two ligaments occurs.

SCHANZ (Dresden) emphasized that a pararticular operation is often preferable to an intra-articular operation because functional restoration is often more important than anatomical restoration. With regard to arthroplasties he emphasized the importance of careful after treatment. In hip joint operations the modeling of the head is not of great importance as the head works down of itself and becomes atrophied. Even when the head of the femur is missing an attempt should be made to firm a joint.

ROEPKE (Barmen) reported on the findings at subsequent examination in the three cases of tuberculous joint in which flaps of fat were interposed in 1914. The results in all three joints (two knees and one hip joint) were good. In mobilizing the knee joint he proceeds with the utmost caution. He has obtained good results in postgonorrheal ankylosis and in arthritis deformans.

In closing this discussion Payr repeated that after a throrplasty he avoids passive movements. He discussed also the various conditions of regeneration of the crucial and lateral ligaments of the knee joint. STERN 2 (2)

Beddard A. P. G. E. M. Elmsl. R. C. How. II. W. and Othe's. Discussion on the Surgical Treatment of Chronic Non-Tuberculous Arthritis. *Proc. Roy. Soc. Med. Lond.* 97, xx, 1465.

BEDDARD stated that rheumatoid and polyarticular osteoarthritis are due to a low grade pyrexia and are comparable with gonorrheal rheumatism the joint changes being primarily infective. He doubts however whether this is true of mon-

articular osteoarthritis in which although there is generally an infective element other factors also are present. He believes that the microorganism concerned is the streptococcus longus and that this is more often of the viridans type than the hemolytic type. The primary sites of infection are the ethmoidal sinuses alimentary canal (including the gall bladder) the male urethra and the uterus. When the primary site is in the uterus or the alimentary canal the results of treatment are very unsatisfactory.

In early cases of rheumatoid or polyarticular osteoarthritis medical treatment gives fairly good results. It often arrests the progress of the disease and renders the joint fairly useful even when there is slight deformity.

PAYR gave the indications for operative interference in chronic non-tuberculous arthritis as (1) derangement of joint action secondary to the disease process (2) joint pain and (3) progressive deformity.

In the treatment of arthritis of the hip joint the operations performed are arthrodesis arthroplasty and partial excision of the head of the femur.

Large arthrodesis as a favorable operation. Even when ankylosis is not produced it relieves the articular pain.

In arthroplasty fascia lata is used for interposition. In none of the cases seen by Payr was a full range of motion obtained and in some of them there was subsequent pain.

Following partial excision of the head of the femur the stability of the joint depends upon the amount of the head and neck that was removed. The joint is usually movable but there is a loss of abduction. Platt has reported recurrence of pain after this operation.

Large arthrodesis by Murphy's method—a U shaped incision around and below the great trochanter followed by the removal of the great trochanter and attached muscles to secure entrance to the joint.

For arthritis of the knee which is more commonly the site of noticeable osteoarthritis this is than any other joint. Payr advises synovectomy when there is chronic thickening of the synovia. In cases of advanced disease simple excision of the joint is the best treatment.

Operative procedures on the ankle and talipes are unsatisfactory because fixation of one joint necessarily imposes a strain on the neighboring joint is not so treated.

In the elbow arthritis is a frequent sequela of injury. Arthroplasty gives the best results rendering the joint fairly useful.

For arthritis of the carpus Payr suggests the removal of the proximal row of bones.

ELMSLIE says The use of moist forms of hydrotherapy remains for the moment in the department of the physician but the general principle rest for inflamed structures requires emphasis. The use of extensions splints and plaster-of-Paris casts during the more active period of the disease is

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

Lewis D Lesions of the Blood Vessels of the Extremities *So Ik M J* 1927 x 4

In arteriosclerosis the principal changes occur in the intima and media but in advanced cases the adventitia also may be affected

In support of the statement that acute infections are of considerable importance as contributory factors in some of these arterial lesions Lewis cites Eichhorst's case of gangrene of the leg developing during scarlet fever in which when amputation was done intimal changes to the extent of separation of the intima from the media were found in the arteries. Similar changes have been reported in cases of death from typhoid fever

Generally in acute infections the most marked changes occur in the media. In diphtheria typhoid fever and sepsis the muscular part of the media is most affected. In another group of infections scarlet fever and sepsis the changes in the elastic tissue are not so pronounced consisting in a loss of nuclei with death of the muscle fibers an increase in the intermuscular connective tissue and the appearance of a homogeneous ground substance

Mesarteritis and not endarteritis is the characteristic change in acute infections. After this change there are three possibilities as to the outcome (1) complete repair within forty days (2) the formation of a scar which may be found years afterward and may cause no functional disturbance and (3) the development of a definite arteriosclerosis the pathological changes of the media extending into the intima and the arteries losing their distensibility and resilience and to some extent their contractility

Old age alone and hypertension alone do not always account for the production of vascular sclerosis as there are many old persons without arteriosclerosis and many cases of arteriosclerosis in persons who are comparatively young. Moreover hypertension and arteriosclerosis may each be present without the other

Arteriosclerotic gangrene begins at the extremity of one or more of the small toes and passes on to the foot or even to the ankle or leg. In spite of all treatment it is usually fatal. In most cases the patient feels great discomfort throughout the foot or ankle particularly during the night. In brief there is more than a small discolored spot on the end of one of the small toes. Infection caused during the paring of a nail undoubtedly has something to do with the extension or development of the gangrene

In diabetes there occurs a typical perforating ulcer not associated with typhus. This is usually located on the sole of the foot just back of the

head of the fourth metatarsal bone. It has callous margins and is deep and crater like. Its development may be slow or rapid. It appears at a point exposed to pressure. Hyperglycemia alone cannot be held accountable for the causation of diabetic gangrene as there are many cases of severe hyperglycemia over a long period in which gangrene does not develop. The gangrene of diabetes occurs at an earlier age than senile gangrene

Thrombo-angiitis obliterans is a clinical and pathological entity with thrombotic occlusion of arteries or of both arteries and veins. The thrombus formation follows inflammation of the arterial wall. Canalization of the clot permits enough circulation to supply the need of the tissues of the extremity. Injection of the vessel after amputation for gangrene shows that in thrombo-angiitis gangrene collateral circulation has been established whereas in arterio-sclerotic gangrene there is no collateral circulation. The pain in thrombo-angiitis obliterans is due to the occlusion of the nutrient artery of a large nerve

The author quotes from the original description of Raynaud's disease Raynaud's prognosis is as follows

The progress of the malady constitutes an element of prognostic importance. When ten to twelve days after an invasion of the severe pains one sees black dry slough form symmetrically on the extremities it may be hoped that the process of mortification will soon be arrested and that after a period of elimination the duration of which will not exceed four or five months the cure will be complete. If on the contrary the tendency to gangrene is less clearly shown if we observe only cooling cyanosis and bullae returning from time to time with or without periodicity we ought to fear that the malady may be prolonged a considerable time and that although it may not immediately compromise life is nevertheless the most grave because it renders life miserable from intolerable suffering and opposes a permanent obstacle to the accomplishment of social duties. ANTHONY F. SAVA M.D.

Moïce and Auvray Autogenous Vaccine Treatment of the Prevention of Phlebitis After Illyterectomy for Fibromata (Du traitement préventif de phlébite après illytérectomie pour fibromes utérins) *Bull. t. mém. S.* 1 d ch 1971 517

Cultures of the mucus from the uterine cavity of fourteen cases of simple uncomplicated fibromata revealed the presence of streptococci. On the basis of this finding the authors concluded that the phlebitis following operations for fibroma may be due to these organisms and conceived the idea

The advantages of the author's operation are that it is simple all braces may be discarded muscle power is conserved the prevention of overstretching may induce the return of power in the anterior muscles and the rocker motion of the ankle joint is conserved

WILLIAM A. CLARK M.D.

### FRACTURES AND DISLOCATIONS

Hansson K. G. and Birrell R. G. The After Treatment of Fractures About the Elbow  
*Am J Surg* 1917 11 13

Of 828 fractures treated at the Hospital for Ruptured and Crippled New York 200 involved the elbow. Fourteen of these required open reduction. In five there was nerve involvement in two myositis ossificans and in one case a complicating arthritis.

The method of acute flexion for fresh fractures about the elbow is now so well known that few doctors hesitate to treat such fractures. The after treatment however is little understood.

Of the patients whose cases are reviewed about 50 per cent did not come for after treatment until a month after the fracture. Such delay renders prolonged treatment necessary. In the cases of patients coming for treatment during the first three weeks the average number of treatments required was 12.5 whereas in those of patients coming after a month the average number was 23. The final functional result is better the earlier the after treatment is begun.

The after treatment should begin as soon as swelling pain and muscle spasm have disappeared usually at about the end of the second week. It should consist in the use of external and internal heat massage and exercises.

In the authors' case heat is first applied in the form of a hot whirlpool bath. After a week of this treatment dry heat is applied by means of a carbon filament lamp with a reflector.

Diathermy also is used either with an electrode on each side of the elbow or with one above and one below the elbow.

Massage is important. It stimulates the circulation and the flow of lymph and releases adherent

tissues. A proper touch is preferable to great strength. The patient should be in the recumbent position during all massage treatments. If the massage causes a protective muscle contraction it is too vigorous.

Active therapeutic exercises are begun after the first week. Passive exercises especially when forceful are unphysiological and have no place in the treatment of elbow fractures. After active motion has been well started it is done against resistance. Finally the patient does exercises on apparatus using his body weight as resistance.

From a practical standpoint treatments can usually be given once a day or every other day that is about one hour of exercises and treatment is twenty-four or forty-eight hours. However as soon as immobilization is dispensed with the patient can carry out the exercises every three hours at his home.

Massage around the callus is contraindicated because it may produce excessive callus or even myositis ossificans.

Even when the best methods are used the results are poor in about 10 per cent of elbow fractures.

WILLIAM A. CLARK M.D.

Carp L. Fracture of the Fifth Metatarsal Bone  
*J N S G* 1927 1 14 v 303

Carp reviews twenty-one cases of fracture of the fifth metatarsal bone. Despite the fact that twenty of these were in adults with normal blood calcium values and a negative Wassermann reaction union was delayed in five. In all of the cases followed up the clinical symptoms persisted so long that some interference with bone repair was assumed. The average period of disability was ten weeks.

The slowness of union is probably accounted for by the poor blood supply of the fifth metatarsal bone. The treatment advised is immobilization in a posterior molded splint with early physiotherapy and if possible weight bearing in the cast before one month in order to prevent bone atrophy. In the cases of children between the eleventh and sixteenth years of age care must be taken not to mistake the epiphysis of the tuberosity for a fracture.

CARL L. CARP M.D.

any increase in the calcium content of the blood in the varicose veins over that in the upper extremities. On the other hand, Wildegans found in the varicose veins in agreement with Klapp an increase in the residual nitrogen values to 5 mgm per 100 ccm, an anomaly in the breaking down of albumin which must be interpreted as a regional disturbance of metabolism.

Of the products of fatigue the most interesting is lactic acid of which when the body is at rest the venous blood contains about 24 mgm per 100 ccm, whereas in varicose veins this value is increased threefold. Wildegans regards it as entirely possible that a surplus of lactic acid is sufficient to destroy the equilibrium of the colloid system. Thrombosis and coagulation are colloidal processes. Thrombosis is not a clinical entity but the result of various local and general disease conditions of the blood and circulatory system.

The results of these investigations indicate that the intricate and often interdependent physical and chemical differences in the composition of the blood should be investigated further.

In the discussion of this report, NIEDEN (Jena) stated that also in the Jena Clinic there has been an increase in the incidence of embolism. In 1933 there were eight cases, in 1924 six cases, in 1925 twenty-one cases and in 1926 twenty-six cases. Post-operative embolism has also become more frequent. In 1923 there were four fatal cases, in 1924 five, in 1925 six and in 1926 thirteen. This increase is attributed first to the more frequent intravenous injection of drugs and to the administration of blood transfusions. These factors, however, do not come into consideration at Jena. Neither does the type of anesthesia (general or local) offer an explanation.

The cause is perhaps to be found in the increase in severe chronic injuries to the blood vessel due to the increased incidence of grapple.

SCHOENFELDER (Vienna) called attention to the close relationship between blood coagulation and thrombosis. The infrequency of thrombosis in the portal circulation induced him to compare the coagulation time of the blood of the portal vein with that of the blood of the veins of the extremities. He found that the time was fourteen minutes in the former and only seven or eight minutes in the latter. Therefore, following operation, it is desirable to have the portal blood flow toward the extremities. Such a flow is favored by the administration of large quantities of fluids and by venous occlusion measures which might be employed in prophylaxis.

VO SEEMEN (Freiburg) cited the investigations of Aschoff according to which the blood platelets play a definite rôle in thrombosis (blood platelet clumping). The important factors essential for its occurrence are a slowing of the blood flow and a coming of the constituents of the plasma. Of chief importance, however, is an increase in globulin such as always occurs after operation. Therefore, venesection should have a favorable effect for as a result of the flow from the tissues there occurs an

increase in albumin and thereby a decrease in the globulin. An increase in albumin and a decrease in globulin is produced also by infusion with Ringer's solution.

MARTIN (Berlin) reported an increase in embolism also at the Bier Clinic in the past twenty years. One hundred and fifteen cases of embolism were observed in the period from 1907 to 1927. In 1917 there were only six whereas in 1924 there were ten. The Trendelenburg operation was performed in four cases but in all was unsuccessful because of spreading of the embolism throughout the entire lung. Martin was unable to say anything regarding the origin of the condition except that it is not determined by the severity of the operative procedure.

STETTINER (L)

#### Streikov S. Studies on the Collateral Circulation

After Ligation of the Innominate Artery (Zur Lehre m. k. l. t. e. a. l. k. r. e. l. a. f. n. a. c. h. s. t. u. l. e. u. e. b. e. r. d. U. t. e. b. d. g. d. e. r. l. e. t. e. r. a. o. v. m. a.) P. k. y. m. d. r. l. 96 Supp. 1.

This is a report of the anatomical, experimental and clinical findings following ligation of the innominate artery. Investigations on human cadavers and on living dogs were made first to determine the best method of approach to this artery. The methods so far devised fall into three groups. Representative of the first group is Dietrich Irogoff, median cervical incision from the cricoid cartilage to the manubrium. The second group is represented by the Graefe-Bujalij lateral incision along the right sternocleidomastoid. In both methods a more or less extensive resection of the manubrium is often necessary. The third method—the Schenkunenko-Lisszyn procedure—is a wide flap incision on the thorax with the base of the flap upward and the formation of a triangular bony flap from the sternum. When this flap is raised upward the anterior mediastinum is easily accessible.

The two first methods which are simpler and cause less trauma are sufficient for simpler conditions, especially when the arterial branches come off from the arch of the aorta close together. When these branches are separated or there are other peculiarities causing difficulty, the osteoplastic method of Lisszyn is preferable.

For the study of the collateral circulation after ligation of the innominate artery the author used twenty-five dogs. In five systematic blood pressure readings on the common carotid artery were made. The results showed that on ligation of the innominate and the carotid proximal to the cannula the blood pressure at first sank very low but after two or three minutes rose to half the original blood pressure. The latter is apparently the level of pressure of the collateral circulation which in dogs is sufficient to maintain a proper circulation in the brain. It was worthy of note also that when the innominate artery and the carotid were first ligated proximal to the cannula the blood pressure curve appeared as a straight line for the first two minutes and small

of preparing an autogenous vaccine for its prevention

The cultures were taken with the greatest care to prevent contamination from the cervix and vagina. In every case pure cultures were obtained. The organism seemed to have a lower vitality and a lower virulence than ordinary streptococci resembling in this respect the organism of puerperal phlebitis. Immunization was obtained with graduated dose of vaccine over a period of not less than three weeks. In none of the ten cases in which hysterectomy was performed did phlebitis develop.

LAO M. ZIMMERMAN M.D.

Brown G. E. Postoperative Phlebitis. A Clinical Study. *Ch. S. & G.* 29, 24.

The diagnosis of postoperative phlebitis is too frequently based on insufficient signs and symptoms. The usual basis is the presence of pain or soreness in the leg. Exact localization of the tender or painful area will usually indicate whether the vein is the site of the trouble. In a series of eighty-seven cases areas tender to palpation were noted. In three these were fairly well limited. Frequently the vein was palpated as a firm tender cord.

The diagnosis of phlebitis has more than an academic interest as many days of additional time in bed may be prevented or more rigorous treatment instituted if the diagnosis is certain.

Pulmonary infarction is a common complication while fatal pulmonary embolism is apparently rare. This verifies a surgical impression of the relative safety of phlebitis. The explanation must rest on the fact that phlebitis is an inflammatory lesion. The clot is firmly attached to the wall of the vein and large fragments are not easily dislodged. Small fragments are thrown off and become lodged in the periphery of the lung producing a sharp reaction in the parenchyma with resulting pleuritis and signs and symptoms of localized bronchopneumonia. In cases of fatal embolism the dislodged thrombi are larger, frequently long segments are dislodged and carried to the lung. Their attachment to the wall of the vein is in evidence and their dislodgment is easy.

Further evidence of the probable essential difference in the nature and behavior of phlebitis and total embolism is shown by their seasonal incidence. The incidence curve of fatal pulmonary embolism seems to follow roughly the curve of the surgical entrants. Phlebitis suggests a seasonal incidence similar to that observed in duodenal ulcer, sprain, and fall colic and infections of the upper respiratory tract may be factors. While the pathological appearance and clinical course of phlebitis suggests an infectious origin, the bacteriological agent has not been proved. In a series of cases of idiopathic superficial phlebitis culture of a portion of the inflamed vessel and its contained clot resulted negatively. No correlation has been demonstrated between phlebitis and the patient's age, weight, or systolic blood pressure factors which seem to play a

contributory role in embolism as shown by H. A. Snell and Snell.

In the eighty-seven cases of postoperative phlebitis which were studied by the author the most characteristic diagnostic sign was a localized tenderness of the affected vein. The presence of edema is equally local. Pulmonary infarction was a frequent complication but there was no increase of fatal pulmonary embolism. A comparison of the seasonal incidence and predisposing factors in phlebitis and pulmonary embolism shows certain clear-cut differences. In the cases reviewed the degree of disability due to postoperative phlebitis was notably slight.

Willegans Th. Die Oelen Thrombose (Zellulose, Holz, Thrombo) 51. T. G. d. d. i. k. l. Ch. Berlin 1927.

Changes in the perit of the blood circulation and injuries of the walls of the blood vessel do not sufficiently explain the origin of venous thrombosis. Up to the present time the physical and chemical factors have not been given sufficient consideration. Induced by the frequency of thrombi in varicose veins Willegans attempted to determine whether there are differences in the venous blood of the upper and lower extremities. The comparative studies of the blood showed almost invariably in the varicose veins a local hydropic edema of the blood (the water content in the blood vein averaged 79.2 per cent and that in the varicose vein 2 per cent more). This local hydropic edema assumes particular significance when it is borne in mind that with every thinning of the blood results in the absorption of fluid from the tissues there is an increase in the coagulability of the blood. When there is over-saturation of the blood with the intravenous injection of hypertonic saline solution we induce hyperemia in order by the hydropic plasma to improve the coagulability by the influx of hyaline. Coagulation of the blood and thrombosis are therefore essentially similar but differ in that thrombosis occurs with a more or less unchanged blood stream whereas coagulation of the blood occurs when there is a stoppage of the flow.

In the plasma of the flowing blood there are found practically all of the factors necessary for coagulation. Just as there are coagulation factors which are characterized by a lack of thrombin and fibrinogen (cholesterolemia, hemophilia) it is conceivable that on the other hand there may be a clinical entity thrombophilia with a particular tendency toward thrombosis.

In experiment on animals it was possible to produce intravascular coagulation by the intravenous injection of fibrin and thrombin. Comparative investigations of the fibrinogen and thrombin content of the basophilic and of antose veins showed in the latter a moderate increase in the fibrinogen units but in general the absence of any particular changes of the blood in the varicose veins or coagulation factors. Moreover it was impossible to find



veous status is being tried out at the Mayo Clinic for controlled conditions. Walters has been in control of the use of thyroid extract in this connection and has recently reported favorably on its use.

Pulmonary embolism following operation seems to be a more common cause of death in the cases of embolism than in those of patients of a fragile constitution. Whether this is due to the age of the patient at the type of operation performed, unknown factors related to the slow and coagulation of the blood or obesity cannot be definitely stated.

In a consideration of these statistics and the experience presented by Henderson it seems probable that there is a group of obese patients more than 50 years of age with a normal or subnormal blood pressure who are particularly susceptible to pulmonary embolism as a postoperative complication.

Harvier P. and Lemire A. Information Furnished by Lipiodol Exploration in Arteritis of the Lower Extremities (The Journal of the American Medical Association, 1934, 44: 424).

The authors have had the opportunity to study fourteen cases of arteritis of the lower extremities by means of lipiodol injections as suggested by Scharf. In five cases there were of lithaemic origin of the arteritis. The first of the series came to autopsy with lithaemic arteritis. The other four cases with lithaemic arteritis were free from clinical evidence of arterial disease. The majority were between 60 and 80 years of age.

The technique used differed slightly from that of Scharf. Direct puncture of the artery was done at the radial arch with uterine surgical exposure of the vessel. The puncture was facilitated by placing the patient in an arch position with the pelvis elevated on a pillow and the thigh slightly flexed and turned externally. A long spinal puncture needle was used and the oil injected with a syringe through a flexible rubber tube. The rate of injection was 1 ml. was injected at the rate of 1 ml. per minute.

There is a small hamist machine that is used in one case which was quickly described as a local accident where the oil entered the veins. In one patient gangrene appeared 24 hours after the injection but the patient died 3 years later in whom gangrene had been induced by the oil. This patient died with a thrombotic embolism of the pulmonary artery. In the other cases there were no complications. In all five cases the oil was removed by the patient's own efforts. The results of the lipiodol exploration in the lower extremities were as follows: In the first case the oil was removed by the patient's own efforts. In the second case the oil was removed by the patient's own efforts. In the third case the oil was removed by the patient's own efforts. In the fourth case the oil was removed by the patient's own efforts. In the fifth case the oil was removed by the patient's own efforts.

noted first in the thigh and several days later in the leg.

The reactions began on the day following the injection and disappeared spontaneously in from eight to fifteen hours. Their intensity was not proportional to the amount of oil injected but seemed to depend on the state of the vascular system. They were less severe in senile persons with inelastic vessels and small collaterals and more marked in the young in whom more complete and sudden obstruction of the arterial fields occurs.

When there was obliteration of the artery arresting the lipiodol in its path the lipiodol seemed to remain for a long time. In one case it was seen unchanged one year after its injection. When the arterial system was permeable the oil disappeared with surprising rapidity. If the injection is made in the patient's room the oil may have disappeared the time the patient can be brought to the X-ray room. Therefore the injection should be made before the screen and the progress of the oil observed fluoroscopically or in serial plates taken every fifteen minutes. Even in all arteriosclerotic cases the disappearance of large vessels rarely requires more than an hour. The disappearance is not due to absorption or to the passage of the oil into the venous system. The lipiodol may be seen in the bits of skin stained with microneedles. They are found to occupy the capillaries. The plugging of the arteriole is probably the cause of the reactions.

In non-lithaemic arteritis the test under discussion cannot be substituted for other methods of investigation. The evidence it supplies is very variable. The results may be uncertain because it is never possible to be sure that the branch of the vessel to be explored will be filled. The injection must be made as low down as possible. In arteriosclerosis the vascular lesions are shown clearly at the level of the first arterial lesion better than can be demonstrated by section. Their caliber is unequal in some places they are filiform and in others dilated. The continuity of the shaft is often interrupted thus interrupting producing a beaded appearance and presenting the most striking evidence of the lesions of arteritis. The most valuable findings are obtained in case of arteritis with obliteration. These constitute the only indication for the method. The procedure makes it possible to distinguish between gangrene due to arterial obstruction with preservation of the peripheral trunk and gangrene in which the trunk is so far that the arteries are free so as to decide on a phlebectomy.

## BLOOD TRANSFUSION

Sony J. W. and Molise T. S.: A Method for the Determination of the Coagulation Time and Retraction Time of the Blood. J. Lab. Med. 1934, 2: 111.

A new method of determining the coagulation time of the blood was devised by the authors.

irregularities in the pulse (pulse waves) first appeared at the end of that time. On the other hand when the same experiment was repeated the pulse waves appeared sooner and on the third repetition of the experiment they became apparent immediately after the closure of the afferent vessels. Evidently there occurred at the time of the first experimental ligation a considerable widening of the collaterals so that thereafter they were capable of functioning from the very first moment of closure.

The anatomical studies of the collaterals under discussion were made on the cadavers of the dogs which were killed at periods ranging from one week to two years after the ligation of the innominate artery. These studies were made with dissections and roentgen studies of the vessels filled with a contrast medium and roentgenoscopy during the filling of the vessels.

In one case the formation of a large new vessel was seen near the ligation. In the first two months numerous fine collaterals were formed and in this process even the vessels of the skin took part. During the next month the large vessels of the opposite side underwent considerable enlargement and after eight or nine months broad collateral vessels were formed on this side. The widening of the collaterals continued for eight or nine months after which it seemed sufficient for the rest of the animal's life (at least two years).

With regard to thrombus formation in the ligated arteries the author noted that even in aseptic wound healing it varied according to the degree of reaction on the part of the crushed intima and that when the ligature was placed near the bifurcation of the innominate the thrombus sometimes extended into the left carotid artery. Strelikov did not see any vascular embolism in his experiments.

He concludes that the chief pathways of collateral circulation after ligation of the innominate and the right carotid arteries are the superior thyroid, the vertebral, the ascending cervical and on the right side the intercostal arteries.

The clinical part of the report is based on a review of the literature. Up to 1912 Strelikov was able to find seventy cases of ligation of the innominate artery, thirty-two cures and forty-six deaths. Of the cured case three were operated upon by Russian surgeons Herzen, Parin and Juckel. On simultaneous ligation of the right carotid does not appear to influence the prognosis but when simultaneous ligation of the subclavian was done a cure was obtained only very exceptionally.

PETROV (Z)

Henderson E. F. Fatal Pulmonary Embolism. A Statistical Review. *Arch S* 5: 1917: 1-3.

The incidence of fatal pulmonary embolism among the surgical cases coming to autopsy at the Mayo Clinic during the last ten years was 6 per cent. Patients who die from pulmonary embolism are older than the average surgical patient and are some that overweight. They have a normal or

somewhat subnormal blood pressure and many of them develop postoperative infections.

The importance of the operative procedure in determining the site of thrombus formation and the occurrence of pulmonary embolism cannot be overlooked. Other factors are the patient's age, weight and general condition, the efficiency of the circulation, the bodily inactivity incident to the operative procedure and infection.

Snell A. M. The Relation of Obesity to Fatal Postoperative Pulmonary Embolism. *A J S* 3: 1: 137.

Snell reports a study made to determine the cause of the increased mortality of obese patients and the measures necessary to reduce it. This involved a comparison of the causes of death of obese patients with those of patients in a control group who died following operation during the same period of time.

In all cases of death after operation during a period of six years (1920 to 1925 inclusive) the patient's history was studied. One hundred and fifty-six patients who died after operation were definitely obese. Autopsy was performed on 145 of this group. In the cases of the eleven others the clinical cause of death seemed sufficiently clear to permit their inclusion in the group.

The high incidence of pulmonary embolism as a cause of postoperative death of obese persons suggests but does not prove that obesity increases the liability to this much feared complication. The average age of the 156 obese patients whose cases are reviewed was 53 years, a fact which emphasizes the relation between age and pulmonary embolism previously noted by Lindsay and Lister. Difficulties in the operation with unusual trauma may be a factor. Mild circulatory failure with resultant venous stasis may also be more common in obese persons. After an operation on an obese patient there may be an increased liberation of thromboplastic lipid substances such as kephalin due to the extensive areas of fat invaded. True fat embolism however occurred in only two of the cases reviewed.

In the interpretation of the foregoing data it must be borne in mind that there are no statistics to refer to the mortality and causes of death for particular operations according to age groups. Such statistics would be a much more accurate basis than the whole group of patients of all ages considered without respect to the type of operation. An analysis of the outcome of serious and extensive surgical procedures on older patients might show a high incidence of fatal postoperative pulmonary embolism.

Observations on the arterial and venous pressure and the rate of the circulation and stasis of the peripheral blood flow would probably shed light on circulatory stasis which is generally recognized as an important factor in the development of embolism. At the present time a definite regimen designed to improve the general circulation and to combat

resistance of the cells is expressed by a frequency of distribution of Pearson's Type 2

The simple hæmolytic system includes most of the hæmolytic glucosides, the soaps and the salts and acid allied to the bile salts. Most of the lyses of bacterial origin also belong in this class.

An inhibition of hæmolysis may be obtained by adding serum to the system. The lysis unites with the serum protein forming a non hæmolytic compound and lysis is removed.

Systems containing sodium taurocholate sodium glycocholate or certain of the soaps differ from those containing saponin, the glucosides or bacterial hæmolytins. Whereas the serum protein always inhibits the action of saponin, the serum proteins either inhibit or accelerate the action of the bile salts according to the order in which the components are mixed together. Thus in the cell serum lysis system mixed in this order there is an inhibition as in the case of saponin, but in the cell lysis serum system there is an acceleration. The explanation of the latter is based on the observation of a similar occurrence when the lysis is of the hæmolytic dyes.

If a weak solution of dye is added to washed cells there is no lysis even though the dye is itself hæmolytic. But if the cells are washed until no dye comes away and the serum is then added there is rapid lysis. Accordingly it is to be assumed that the cells were sensitized with small portions of dye absorbed to the cell envelope and that when the serum is added a new lysis is formed which is hæmolytic for sensitized cells.

However if a smaller amount of the protein is added the reaction is slower corresponding to the times which can be calculated from Expression 1. As in simple hæmolysis the entire kinetics can be solved in terms of Expressions 1 and 2. The phenomena with bile salts are identical with those observed with brilliant green, the taurocholate re-

placing the dye as a sensitizing agent although it is hæmolytic by itself. The sensitization seems to be due to a loose combination of the bile salts with the cells and the lysis following the addition of serum to the formation of a new lysis as a result of the union of the combined taurocholate with added proteins. The reaction is influenced by inhibition phenomena or secondary reactions the effects of which require investigation.

In cell complement silicic acid systems the complement should be added to the cells first and then allowed to stand for a short time. The subsequent addition of silicic acid will then bring about a rapid lysis. When the mixing is done in this order it is interesting to note that if a constant amount of silicic acid non lytic in itself is added to systems containing increasing amounts of complement an increasingly rapid lysis results until a certain maximum is reached. With greater amounts however lysis becomes slower until there is none at all.

These maxima possess a special property which greatly simplifies the kinetics of the system for the ratio of complement to silicic acid at any maximum is always constant. When complement and silicic acid are added in the ratio which gives the maxima and are present in certain proportions lysis proceeds as if it were a simple hæmolytic.

When too much complement or silicic acid is used the lysis is slower than at the maximum. We know however that the slower lysis is the result of a reaction very similar to the inhibition of a simple lysis by serum.

If three units of silicic acid are added to one unit of complement two of the added units cannot combine to form the lysis as there is insufficient complement. These units absorb the lysis and render it inactive as it is formed. Excess of complement acts in the same way. Only when there is no excess of either component is the newly formed lysis free to act without inhibition. ROBERT M. GRIFFIN, M.D.

work on white rats and was later employed in studies of purpura hemorrhagica and in a series of 130 uterine operations on fifty normal persons. The method also gives an excellent opportunity to determine the retractability of the clot. The average coagulation time in the cases reviewed was between five and eleven minutes for coagulation and between twenty-five and forty-five minutes for complete retraction.

A number of other methods for determining blood coagulation time are discussed. In 1911 Cohen reviewed thirty-one methods of determining the coagulation time of the blood. Ten of these required the drawing of blood into capillary tubes. Cohen considered the Addis modification of the Brodie and Russell method most accurate at that time but this required a special instrument and was too complicated for general use.

Lee and White in 1913 described a method which was simple and apparently reliable. One cubic centimeter of blood was removed from a vein by a sterile syringe and placed in a small sterile tube cleansed with physiological saline solution. The time of withdrawal was noted. Every thirty seconds the tube was rotated endwise. The end point was reached when the blood no longer flowed but maintained the same contour when the tube was inverted. This method required a vein puncture and more blood than most of the popular methods.

The authors' method is simple, requires a minimal amount of blood, and gives the opportunity to determine retractability. Its chief defect is that it requires considerable practice to determine the endpoint.

Capillary tubes 3 cm. long and having an internal diameter of from 0.2 to 0.3 mm. are used. The skin is carefully cleansed and dried by the use of alcohol and ether. The puncture is made sufficiently deep to obtain a free flow of several drops of blood. The capillary tube is held by forceps and the first drop of blood is drawn by capillary attraction into the tube. The tube is placed on a clean slide and observed with low power magnification and the ocular micrometer.

The time of puncture is recorded. After an average time of two minutes and forty-four seconds a thin opaque line appears between the blood and the wall of the tube. After about four minutes and fifteen seconds a serrate outline gradually appears and becomes wider. After about eight minutes the blood begins to retract from the walls of the tube. This considered the coagulation time. The retraction continues for about thirty-five to forty-five minutes. Observations are made at frequent intervals and the time at which retraction ceases is considered the time of complete retraction.

The average retraction time for normal persons is thirty-six minutes.

Lee and White, Jones, W. Stokes, H. T. and Phillips. B. I. The Hematopoietic Effects of Intravenously Injected Nucleic Acids. *J. Am. M. A.* 1914, 9, 1322-63.

Washed nuclei from the red blood cells of the foal when injected intravenously in a normal

rabbit produced marked hematopoietic stimulation. The cytoplasm of the red cells of the foal in which the nuclei were removed, i.e., that part of the cell containing the iron element of the hemoglobin, did not produce hematopoietic stimulation. This was true also of the corresponding part of the erythrocytes from the horse and the dog injected into rabbits.

Nucleic acids (and nucleoproteins) obtained from the washed nuclei of the red blood cells of the foal when injected intravenously into normal rabbits and into anæmic human beings produced a hematopoietic stimulation similar to that resulting from the injection of the nuclei themselves.

Successive intravenous injections of the sodium salts of nucleic acids did not appear to produce deleterious effects in normal rabbits or in the one patient to whom a second treatment was given. On the other hand, splenectomized rabbits showed marked depression and shock from a single injection of approximately like amounts. This depression was of several days' duration. One human patient who had been splenectomized more than a year prior to the treatment showed very similar effects lasting several days. It appears therefore that the spleen has a part in assimilating the injected nucleic acids but how this is done is not clear.

Nucleic acids administered in small amounts appear to serve as hematopoietic stimulants in anæmic human beings as well as in normal rabbits but the effect is temporary.

HOWARD A. McKEON, M.D.

Pond, R. F. The Kinetics of the Various Hemolytic Systems. *B. M. J.* 1914, 95.

The author discusses first a simple hemolytic system such as when a known lysis in known quantity acts on washed red cells in the absence of substances which would accelerate or inhibit the reaction. When saponin is used the reaction which results in lysis is accompanied by the unbinding of saponin and combination of the lysis with some component of the red cell envelope. This is considered critically in protein nature.

Two algebraic expressions have been worked out for the first relating to the velocity of the fundamental reaction and the second giving the cell resistance distribution. The number of cells which are hemolyzed at any moment from the beginning of the reaction until the stage of complete hemolysis is accordingly found not from one expression but from the simultaneous solution of Expressions 1 and 2.

The result of this simultaneous solution is an equation which gives the number of cells hemolyzed at any stage of the experiment. As the fundamental reaction is steady in velocity and the curve is also a symmetrical other experiments have shown that the solution of these expressions is correct. Therefore the conclusion is drawn that the fundamental reaction between the protein of the cell envelope and the lysis is of the first order and the

operation the patient should be allowed to sleep until 7 a m and then given a glass of hot water. The usual morning toilet—cleansing of the teeth, shave, etc.—should be carried out. In the author's cases, 1 gr of morphine and  $\frac{1}{100}$  gr of atropine are given hypodermically one half hour before the operation. The skin preparation is done the day before the operation.

This preparatory treatment gives the patient the best chance for a good night's rest before the operation and brings him to the operating room in the best possible frame of mind.

The clearing up of focal infections in the mouth, throat, or nose is of great importance as the administration of the anæsthetic through passages full of bacteria is very dangerous.

When the stomach or small intestine is to be opened a milk diet should be given for one or two days before the operation. If pyloric stenosis is present it is advisable to wash out the stomach the night before the operation.

In cases in which an operation is to be performed on the bile passages the author gives 10 gr of hexamine three times a day for a week and when jaundice is present he gives 5 cc of a 10 per cent solution of calcium chloride intravenously daily for three days to increase the coagulation time of the blood. Frequently a glucose solution containing 40 gm of glucose and 4 gm of sodium bicarbonate in a pint of water is given by rectum.

In cases of perforative lesions requiring emergency surgery a full dose of morphine is given at once and the patient kept warm until the first shock has decreased (usually one or two hours). When this is done he is rendered better able to withstand the shock of operation.

In acute appendicitis in children glucose solution is given by rectum while the child is being prepared for operation.

The efficacy of preliminary washing of the stomach in cases of intestinal obstruction is questioned as the stomach immediately fills up with the dark regurgitated fluid. In such cases spinal anaesthesia is preferable to inhalation anaesthesia as in the latter there is danger of vomiting with the aspiration of foul liquids into the lungs.

HAROLD M. C. M. D.

Recent Newer Viewpoints in Pre-operative and Post-operative Management (Neurological, Gastrointestinal, and Thoracic) by J. T. C. and J. S. C. B. L. N. 1927

Recent first reviews the deaths occurring in the last four years in the surgical division of the Mannheim Hospital. Of 15,460 patients admitted in the period from February 1, 1923 to December 31, 1926, 867 (5.6 per cent) died. One third of the deaths were due to infections and wounds, one third to malignant tumors and tuberculosis, and one third to peritonitis and stomach and gall bladder operations. The fact that 10 per cent of the deaths in the last group were cardiac deaths indicates that there is

need for a better estimation of the state of the circulation before operation. Therefore in the last nine months numerous heart function tests (Schrumf, Goencz, Mosler, Katzenstein, and Kauffmann tests) have been tried out on patients to be treated surgically on the author's service. The type of test and the results are shown in tables and curves. With the aid of these tests poor cardiac function is recognized more frequently than before. A heart with poor function should be treated with digitalis before operation. Haphazard digitalization is to be avoided as it is dangerous.

The newer heart remedies are discussed briefly. The importance of camphor in the treatment of pneumonia of quinine and quinidine in Basedow's disease of adrenalin and strychnin in sudden arrest of the heart action of strychnin and caffeine to cause vasoconstriction and of amyl nitrite, nitroglycerin and papaverine in high blood pressure is discussed.

Mention is made of the marked increase in embolism in recent years which was especially great in November and December of 1926 and for which no definite cause has been found. That certain types of persons are predisposed to embolism could not be established. The Trendelenburg operation was done in several instances but always too late.

With regard to postoperative pneumonia the difficulty in the evaluation of the newer remedies is cited. Pneumococcus serum, aseptin injections of ether and autogenous blood, carbon dioxide inhalations, and X-ray treatment are critically discussed. Up to the present time there is neither a sure prophylactic nor a sure curative agent.

Next discussed are the changes in the acid base equilibrium and the synthesis of protein bodies after operations. Acidosis is not harmful in itself being like disturbances in the metabolism of protein merely an indicator of a marked disturbance in the body economy. The recommended infusions of glucose with and without insulin and the administration of soda do not influence postoperative metabolic disturbances but are of value in preventing a diminution in the glycogen of the liver. When there is severe vomiting sodium chloride must be given to replace the lost chlorides.

Innovations in infusion technique (continuous intravenous drop infusions) and hunger and thirst and their consequences (thirst, fever of children, signs of cerebral irritation) are discussed. The administration of fluid is of the greatest importance. Preparation of the intestine (strong cathartics are contra-indicated) and the use of agents such as cholin, hypophysin, pituitrin, and pituitrin to combat postoperative ileus are of importance. Too quick stimulation of the bowel is to be avoided. The preparation of the mouth is still poorly done.

The relationship between physical and mental states (shock, fear, psychosis, delirium, anxiety, and their consequences) the influence upon the patient of his surroundings (color of the sick room) and the proper use of sleep-producing and pain-relieving

# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

Hagenbach E The Operability of Infants (De  
Operabilität des Säuglings) *Ir k f kl Ch*  
1927 xlv 635

With regard to the indications for early operation on infants for conditions not immediately endangering life a differentiation must be made between those conditions which may threaten life more or less suddenly in the course of time—such as pyloric spasm and hernia with a tendency to become incarcerated—and those which though not dangerous gradually become worse—such as dislocation of the hip, torticollis and cleft palate and lip. For all of these conditions the author advocates early operation for various reasons. In a third group of conditions such as umbilical and inguinal hernia delay of operation gives a chance for spontaneous cure.

Hagenbach reviews the cases of eighty-two children under 10 months of age who were subjected to various major and minor operations on the surgical service of the orthopedic clinic of Basel during the period from October 1920 to October 1926. Of most all of the deaths were due to conditions usually regarded as fatal such as ectopia of the bladder, umbilical hernia, atresia of the anus and myelomeningocele. However one death was due to wound infection in a case of large lymphangioma of the neck causing suffocation and another to the aspiration of vomitus on the third day after an operation for hernia.

The early operations especially those for hernia were performed on the basis of the generally recognized indications. In Switzerland hernia in adults are so common that the chances for a cure are not regarded as favorable. By questioning the patient's mother the author has frequently been able to trace such hernia back to infancy. The difficulties caused by umbilical hernia are often overestimated but the other extreme is also to be avoided. The conservative treatment of inguinal hernia is troublesome and expensive and when it is successful there is no certainty as to the permanency of the results.

The author always operates with the patient under mixed narcosis (ether-chloroform with the use of the Braun apparatus). This is well borne by infants. In the cases reviewed, three untoward incidents occurred but they terminated favorably.

Hemorrhage is borne as well by infants as by others but great care is necessary to spare the tissues. Hagenbach has not observed any serious disturbances of wound healing or of the digestive or respiratory tracts. For judging the patient's condition several days of observation are necessary. Unnecessary purgation is to be avoided. The author

sutures the skin with catgut. In the cases of restless children the administration of several drops of pantopon syrup is less harmful than the child's struggle against being tied down. After narcosis, the bronchitis kettle should be employed. Because of the usual injury to the gastro-intestinal mucosa caused by the narcosis, Hagenbach keeps his patients on a strict tea diet for two days. In spite of this, they usually leave the clinic with a gain in weight.  
STEVENS (L)

Mitchell W E M The Preparation of Patients for Operation *Lancet* 1927 cxxi 27

The many changes which have been made in the last few years in the preparation of patients for operation have been an important factor in the reduction of operative mortality and the hastening of convalescence.

The author disapproves of routine purgation with castor oil or other drastic purgatives. Castor oil is a strong irritant and leaves the intestinal tract in poor condition for the mechanical work to be done by the surgeon. Its use is particularly inadvisable therefore when an intestinal operation is to be performed.

The most serious objection to the use of castor oil is the inertia following the purge. The author believes this is a factor in the development of postoperative ileus. Purgation interferes also with the patient's rest the night before the operation when sleep is most essential. The disadvantages of purgation before operation have no counterbalancing advantages.

It is not necessary to starve the patient before operation as was formerly done. Starvation predisposes to acidosis or lowering of the alkali reserve in the blood. It seems also to favor postoperative vomiting.

A general routine examination of the patient before operation is essential. Examination of the heart, lungs, urine and nervous system and a test of renal function are advisable in all cases.

If it is possible to delay operation for a sufficient length of time it is advisable to clear up foci of infection in the teeth and tonsils.

If necessary paraffin oil may be given daily for several days before the operation to insure a normal bowel movement.

Visitors should be excluded from the patient's room after 6 p.m. and the patient should retire early. The nurse should be informed of the proposed technique in order that she may give the proper cooperation.

Liquids should be given freely during the preoperative period and a light supper should be given the night before the operation. On the day of the

had twelve of his own. Psychic disturbances are more common in males than in females. In females their incidence is greater after gynecological operations than after other surgical procedures. Children are very rarely affected. The condition is most frequent in the fourth and fifth decades of life. A distinction must be made between true and false psychoses. In first group affections of the brain centers or hemorrhages are not included. The false psychoses are due to febrile diseases, poisonings (iodoform), intoxications (intestinal obstruction) and similar conditions. Two thirds of the cases belong to the manic type and one third to the melancholic type with a tendency toward suicide. It is not always necessary to place the patient in an institution. The treatment can usually be only symptomatic. Of chief importance is the prevention of such disturbances by careful determination of the patient's family history and any previous psychic disturbances in his own history. Care is necessary in operating on patients who have much anxiety before the operation.

ROHNE (Duesseldorf) discussed thyrotoxicosis and operative treatment. The operation affects not only the organ involved but also the organism as a whole. Of particular importance is the function of the endocrine glands and the condition of the nervous system. The function of the sympathetic nervous system and that of the endocrine glands are interrelated. The condition of the sympathetic and parasympathetic must be determined. Of importance is the determination of the basal metabolism. Before the operation the administration of calcium, quinine, preparations of phosphorus and possibly small amounts of iodine is indicated. Cardiac and circulatory disturbances must receive attention. In thyrotoxic disturbances a preoperative and possibly also a postoperative roentgen treatment of the thymus is indicated. The liver and kidneys should be tested and if necessary treated before operation. The surgeon must consider all these points and strive to improve the general condition.

BIER (Berlin) stated that he has never recommended ether injections in pneumonia nor for the prevention of bronchitis. After the development of bronchitis however he recommends their use as early as possible.

KORTZBORN (Leipzig) reported on 1000 intestinal flushings with the subaqueous enema (Sudabed enterocleaner). The apparatus has been so perfected that the patient has only very slight discomfort. Kortzborn described the apparatus and showed pictures of it. It produces a more complete emptying of the bowel than any other method. It is particularly valuable before roentgenograms are taken and especially when a search is to be made for stones in the kidney or ureter. In one case it was possible by this means to remove eleven ureteral stones. The results are especially brilliant in chronic obstipation on a spastic basis.

LOEHR (Hiel) called attention to the gastric and intestinal disturbances which frequently occur

three or four days after gastric operations and not rarely lead to a fatal outcome following a profuse diarrhoea. He attributes them to the diminution of hydrochloric acid after the operation and the consequent ascent of the colonic flora to the stomach. He compared these conditions to the dyspepsias of infants which can be relieved by an antibacterial diet of acid milk, buttermilk and rice water and recommended similar feeding to prevent their occurrence.

FRIBRAM (Berlin) mentioned the importance of early stimulation of peristalsis after laparotomies. He does not approve of preoperative bowel flushings and evacuations because he is of the opinion that the full colon begins to act more readily than a colon that is empty. He therefore gives a diet rich in roughage before operation. For stimulation of peristalsis he uses a new remedy called C 25 which is made by the I. G. Dye Industry.

MEYER (Cottlingen) argued against the unnecessary use of digitalis before operation. In the cases of healthy persons he has noted after its use an extrasystolic irregularity which is probably to be traced to the vagus. He is skeptical regarding Loehr's plan of influencing the bacterial flora by diet.

KILIAN (Duesseldorf) presented a record made in an experiment on animals which shows the course of histamine shock in all its phases. There was every degree of disturbance of the bundle of His up to complete dissociation. Besides the electrocardiogram Kilian showed the blood pressure and respiration records. The latter made with his own pneumotachometer after the principles of Fleisch and on the basis of Poiseuille's law. These also showed very marked changes. From this it is evident that disturbances of the bundle of His play a more important rôle in shock than was formerly assumed and that the lowering of the blood pressure with stagnation of the blood in the splanchnic vessels and possible loss of tone are not alone responsible for the poor outcome in shock. A second film showed very marked changes in conduction an electrocardiogram greatly changed by repeated extrasystoles and a markedly changed blood pressure curve and pneumotachogram after slight overdosage of adrenalin which pointed to the necessity for greater care in the administration of the drug. This shows us how poor our knowledge is as to the proper indications and dosage of preparations in cardiac disturbances at surgical operations.

NEHRKORN (Elberfeld) recommended getting the patient out of bed early after operation and emphasized the importance of the early massage and exercise. In the period from 1903 to 1910 before he observed these principles the incidence of thrombosis in his cases was 213 per cent and that of embolism 0.71 per cent. Since the year 1910 to 1911 when he began to get his patients up on the third day after operation whenever possible the incidence of thrombosis has been reduced to 0.78 per cent and that of embolism to 0.23 per cent.





Mid Rhine Obstetrical and Gynecological Society in December 1925

In 53 per cent of the cases of postoperative deep thrombosis of the veins of the thigh there was sluggishness of the circulation secondary to disorders of the cardiovascular system, corpulency or postoperative pulmonary complications. In the cases of postoperative embolism, sluggishness of the circulation was a factor in 50 per cent. Eighty-one per cent of the deep thrombi of the veins of the thigh and 75 per cent of the puerperal emboli occurred in patients who for some clinical reason could not be gotten out of bed sufficiently early. To prevent postoperative and puerperal varicose thromboses it is necessary to supplement early getting out of bed with immediate bandaging of the legs.

The greater incidence of embolism after vaginal operations is due to the relatively greater danger of embolism after interposition operations which are frequently performed in the clinic. In the period of time reviewed other vaginal operations such as colporthaphy, colpoperineoplasty, and vaginal total extirpation were never followed by embolism.

In the puerperium, thrombosis and embolism are most apt to occur after uterine tamponade and manual separation of the placenta. After cesarean section the incidence of thrombosis of the veins of the thigh was 29 per cent and that of embolism 0.6 per cent.

In the cases of deep postoperative and postpartum thrombosis of the veins of the thigh an infectious cause was demonstrable in 62 or 63 per cent, whereas in cases of superficial thromboses infection was a relatively rare factor. Thirty-six per cent of the emboli followed aseptic lumbar anesthesia and 6 per cent followed ether anesthesia.

No influence of the time of year upon the incidence of thrombosis and embolism could be established with certainty. Increasing age seemed to be an important factor.

HA TH N (G)

## ANTISEPTIC SURGERY TREATMENT OF WOUNDS AND INFECTIONS

Liston W G. Introductory Remarks on a Discussion on Vaccine Therapy. *Ed b gh M J*  
1927. *Med Chu Soc Ld b gh o*

Although vaccines have been employed for the prevention and cure of disease for more than a quarter of a century, there are still those who hesitate to use them. On the other hand, there are others who employ them to cure all manner of ailments, oblivious of the fundamental principles that govern vaccine therapy.

A vaccine must be made from the particular species of bacterium that is the cause of the disease to be treated. The importance of this fundamental principle was well demonstrated in inoculations against enteric fever in India, when it was found that in the cases of persons who contracted the infection in spite of inoculation, the organism in the blood differed in some respects from the typhoid

bacillus of Eberth. The atypical strains were subsequently designated paratyphoid bacilli, and two of them were called respectively Paratyphoid A and Paratyphoid B. Since 1916 a typhoid vaccine has been prepared which contains not only strains of the typhoid bacillus but also strains of Paratyphoid A and Paratyphoid B. This vaccine has come to be known as the triple typhoid or TAB vaccine.

A vaccine must be prepared in such a way as to produce a maximum antigenic or immunizing effect. Vaccines are generally made from cultures grown on agar. The organisms are emulsified in carbol saline solution and killed by exposure to a temperature of 60 degrees C. for half an hour. This procedure has been adopted because it is the most convenient method of making the vaccine so that the number of organisms it contains may be counted. A vaccine is counted in order that it may be standardized. However, we know that in the case of plague a vaccine prepared from a broth culture grown for some weeks (in which it is impossible to count the number of organisms) is superior to a vaccine prepared from a culture grown on agar. We know also that a vaccine killed by exposure to a temperature of 55 degrees C. for ten minutes is superior to one exposed to a higher temperature for a longer time. Moreover, the greatest protection against plague infection is secured from a vaccine which has been prepared from a virulent strain of plague isolated from the body as recently as possible.

In the prophylactic use of vaccine the object to be aimed at is the production of the maximum protection with the least risk to the patient and the least inconvenience to both the patient and the inoculator. There is evidence that two doses confer a higher degree of protection than one dose. In Britain two doses are given in inoculation against enteric fever, and in America three doses.

The vaccine dosage in the treatment of disease is a matter of vital importance and very difficult to determine. When a disease has developed the patient has already in his body a quantum of bacteria with which he is battling. Therefore the dose used must generally be less than the prophylactic dose and in inverse proportion to the severity of the infection. It is good practice always to begin with a small dose and increase it more or less rapidly as may be indicated by the response to the inoculation. When the suitable dose has been attained it should be continued until it fails to produce the proper response.

Another fundamental principle of vaccine therapy is based on a knowledge of how bacteria protect themselves against destruction in the tissues of the host. Every effort must be made to bring the immune substances circulating in the blood after inoculation into intimate contact with the bacteria. Areas in which bacteria can lie protected from these substances must be opened up and drained and supplied with as free a flow of lymph as possible.

SELTZER (Freiburg) reported the good results he has obtained by the administration of carbon dioxide. He has the patient inhale carbon dioxide for from three to five minutes after the narcosis while the skin is being sutured. The deepening of the respiration thus brought about is favorable in every way and the incidence of gastro-intestinal atony and kidney injuries has been decreased.

LAEWEN (Marburg) reported that he had observed the recurrence of an embolus of the pulmonary artery during an operation for pulmonary embolus. The heart which had already ceased beating was brought back to function by aspiration of blood from the right ventricle, the injection of adrenalin and cardiac massage. Suddenly however the right ventricle dilated again and the heart ceased beating permanently. Autopsy revealed a new embolus which had probably entered the pulmonary artery during the operation. To prevent such an occurrence Laewen advises momentarily releasing the clamp and ligature on the pulmonary artery to permit the blood to spurt from the right ventricle and thereby wash out any remaining blood clots.

STETTNER (Z)

Alglais P. Dermo Epidermal Grafting en godets (La gâse d'alginate mique en godets) J d ch 1927 xxix 639

Alglais's method of grafting while based upon that of Reverdin differs from the latter in that the grafts composed of both dermis and epidermis are inserted into niches or godets of corresponding size cut from the granulation tissue. This prevents the grafts from being rubbed off and insures them ample nourishment. Both graft and godet are cut from 5 to 8 mm wide. The grafts are applied from 1 to 2 1/2 cm apart. If the layer of granulation tissue is thin a surface flap may be left to cover the graft for still better protection.

The best results are obtained with autogenous grafts taken from the inguinal region. Both wounds are dressed with sterilized chiton silk (prepared with linseed oil) and then covered with gauze and cotton. The dressings are renewed daily, the wounds first being washed gently with boiled water and exposed to the air for ten or fifteen minutes. When there is fever or infection and the wound bleeds easily it is better to delay grafting until the general condition improves and the granulations show firmness and activity.

With A A GILBERTSLEEV.

Titus P and Dodds P. The Common Causes and the Prevention of Reactions Following Intravenous Injections of Glucose (Dextrose) Solution. Am J Obst & G 1927 xiv 8

Reactions following intravenous injections of glucose solution are usually due to (1) the use of impure glucose (2) the use of some fluid other than freshly distilled uncontaminated water to dissolve the glucose (3) the improper preparation and sterilization of the solution and the apparatus for its administration or (4) the administration of the glu-

cose either too rapidly at too low a temperature or in too weak a solution.

To insure good results from the intravenous administration of glucose solution and to prevent unwarranted criticism of it as a therapeutic measure it is necessary in home practice to use the pre-sterilized ampoules of glucose (dextrose) now readily obtainable or to have the solutions carefully prepared in a well conducted laboratory. In hospital practice the preparation of the solutions should be placed under the control of one person. The technique of preparing, storing and using the glucose is described in detail.

C. L. Cox M.D.

Short A R and Fraser A D. Unexpected Deaths in the Postoperative Period. F u M J 1914 1001

The greatest number of deaths in the period immediately following operation are attributed to pneumonia, bronchitis or massive pulmonary collapse. There is some special danger of pulmonary complications following operations for gastric and duodenal ulcer and gall bladder conditions. Lung complications are not always due to sepsis many of the postoperative deaths from such complications occur in clean cases. Pulmonary embolism has often been diagnosed but rarely found. In the cases reviewed most of the deaths attributed to it were found to be cardiac deaths.

Cardiac failure is probably the least preventable of the causes of death in the postoperative period. It accounted for eleven of the 100 deaths reviewed. In six cases the death was entirely unexpected. Most deaths from shock occurred after gall bladder surgery. In the authors' opinion there was some underlying hepatic insufficiency in these cases. Renal complications accounted for fourteen deaths in the series. In seven cases the operation was a prostatectomy. Although deaths from renal insufficiency following surgery on the urinary tract and especially after prostatectomy are much less frequent than they were the authors believe that their number can be still further reduced.

In the cases of patients with bronchitis operation should be avoided if possible or performed under local anesthesia. Inhalation of ammonia and chloroform must be prevented. Bladders must not be aspirated lightly. In operations on the upper abdomen the inhibition reflex must be decreased to the minimum by the use of novocain or quinine urea. A proper study of cases with myocardial insufficiency and its determination of renal and hepatic function are of great importance.

Arthur R. Cox M.D.

Schumacher P. The Cause of Puerperal and Puerperal Thrombosis of Embolism in a Contribution Based on Clinical Observations. (Ueber die Ursache und postoperative Thrombose und Embolie im Puerperal Thrombose und Embolie im Puerperal). Grundriss der Geburtshilfe 21. 1. 1927. G. Fischer Verlag.

The author has further classified and added the material reported upon by von Jaschke before the

organism free bacterial filtrate from bouillon cultures eight to ten days old. It can be produced from staphylococci streptococci bacillus coli and other organisms. Perhaps the most correct procedure is the production of an autogenous antiviral but this was rendered impossible by the long time that is required for its production. Most effective appears to be a mixture of streptococci and staphylococci. The diseased portion must be brought into immediate contact with the antiviral. It is particularly suitable for compresses irrigations and bathing but its subcutaneous administration produced no result. In fifty cases (lymphadenitis furuncles paronychia tonsillitis and similar conditions) a cure was obtained in 30 per cent a favorable effect in 37 per cent and no evident improvement in 33 per cent. In the cases in which it was effective the results were striking. Pain ceased in from two to four hours and the redness decreased. In most of the cases no incision was necessary.

DEBEL (Vienna) also reported good results. The use of a variety of bacteria proved most effective. Accordingly an antiviral made of fifty different strains of streptococci was employed. The question now arises as to whether this method can be used as a prophylactic measure.

PICARD (Berlin) reported on 250 cases from the Hübner Clinic in which good results were obtained. The processes were arrested and healed more quickly. In experiments on animal with the coccus of erysipelas it was found that infection did not occur when the animal was treated prophylactically and that when the treatment was given after the development of infection the infection cleared up. The untreated animals died.

LOTHEISEN (Vienna) reported that he had been using the bacterial filtrate prepared according to the method of Besredka since August and is convinced of its specific effect. In true erysipelas and phlebitis he saw no effect. On the other hand he observed in

a phlegmon of the lower leg a striking effect within ten minutes. Several furuncles of the lip improved within a short time and paronychia and periostitis cleared up quickly. Severe anginas improved in a short time following application by painting. Lotheisen urged further testing of the remedy.

STETINER (Z)

## ANÆSTHESIA

Cabot II and Ransom II. Ethylene as an Anæsthetic for General Surgery. *A S G* 971:25

Cabot and Ransom review their results with the use of ethylene as an anæsthetic in 1167 cases. In agreement with the numerous reports that have been published hitherto by others they conclude that ethylene has all the advantages of nitrous oxide and oxygen gives greater relaxation and does not cause objectionable cyanosis. As it will not produce complete muscular relaxation for operations on the upper abdomen it is inferior to ether or chloroform as a general anæsthetic but it may be combined satisfactorily with ether when greater relaxation is required.

The blood pressure readings show an average rise of 7 per cent but return to normal in the first half hour of anæsthesia. An apparent increase in bleeding at the beginning of the operation may be related to the initial rise in the blood pressure.

The danger of ignition or explosion of ethylene may be avoided by excluding naked flames and sparks from the operating room. The apparatus must be cared for to prevent the accumulation of inflammable deposits. The present requirements of a cumbersome apparatus and a trained anæsthetist make it unlikely that ethylene will supersede ether or chloroform for use outside of hospital but for general hospital procedures it has outstanding advantages.

MUELLE LICHTENSTEIN M D

It must be borne in mind also that vaccine therapy has a limited field of application. It is applied most successfully to the prevention of disease, the treatment of localized infections, and the treatment of the earlier stages of acute infections.

ANTHONY L. SWE, M.D.

Gaza on and B andl The Bases and Result of  
Alkalization and Acid fication in Surgical  
Inflammatory Conditions (G u d l a g e n u i F r  
f l g d e r A l k a l e r u g u d S s u r u g b e i c h r u r g s c h  
e n t w i c k l u n g d e r F r k r k u n g n) S t T g d d i t s k  
G s f C h - B e l 1927

According to investigations made by Herrmannsdorf in the Munich Surgical Clinic an acid diet has a favorable effect and an alkaline diet an unfavorable effect upon the healing of wounds. Von Gaza and Brandt attacked the problem from a different angle. They cured abscesses by irrigating them with alkalis. Even large abscesses could be cured in this manner. Accordingly there seems to be a contradiction in that on the one hand acids and on the other hand alkalis are said to have a favorable effect upon the healing of wounds. In Munich acidification and in Goettingen alkalization is used and in both places good results are being obtained.

However this contradiction is only apparent. It depends upon the stage of the condition whether acidification or alkalinization is indicated. In a case of roentgen ray ulcer the alkaline solutions stopped the pain whereas the acid solutions were more effective as regards healing. Therefore acid compresses were used for periods of one hour but in the intervals the ulcer was treated with alkaline solutions. In acute processes (furuncle) acid solutions seem indicated but in chronic lesions alkaline solution are preferable. In treating with acid solutions the intensity of the treatment is of importance.

The authors call attention to the fact that ten years ago Bier attributed the good or poor healing of wound to wound hormones.

Following this report SCHNEIDER (Duesseldorf) discussed the prospects of intravenous treatment with a buffer solution. He stated that experiments have shown that the prospects of obtaining an effect upon the hydrogen ion content of the inflamed tissue with local treatment are very slight and that while it is possible to alter the hydrogen ion content of the free pus it is not possible to change that of the pus producing tissues. Also in experiments with the intravenous injection of a phosphate buffer solution it was found impossible to influence the hydrogen ion content of the tissues particularly in inflamed tissues by this method. Such injections produce a temporary shifting of the hydrogen ion content of the blood and an effect upon the albumin globulin quotient. This effect is evidenced by the fact that when a buffer solution on the acid side is employed a shift toward the globulin side occurs and when a buffer solution on the alkaline side is employed a shift toward the albumin side

occurs. On the basis of these investigations an intravenous therapy with the object of raising the hydrogen ion content at the site of an inflammation is as abandoned as futile.

INCUSSEN (Berlin) discussed the potassium metabolism in normal and inflamed tissue. In the place of Schueck (Berlin) who was unable to be present at the meeting he reported a series of investigations undertaken in the Physiological Chemistry Institute of the hospital at Berlin on his direction. Schueck found as a rule an agreement between vasoconstriction and the sympathetic system and between vasodilatation and the parasympathetic or central nervous system. The question as to whether calcium or potassium has a compensatory action in the sense of the Kraus-Zonka theory was substantiated clinically. The relevant question as to whether in inflammatory condition the relationship of potassium and calcium is altered by an increase in the former was tested by Incussen on the broadest possible basis. That there is a change in the physicochemical conditions during inflammation—in the broad sense—is very probable according to the evidence of biological colloid chemistry. The verification of this, however, is very difficult because of the different general conditions of the organism in each case and the difficulty of obtaining specimens for chemical analysis. The study. As a result of the progress that has been made in method of microscopic analysis meets with few difficulties. For the present the investigations do not justify any definite conclusions even though in a series of cases they showed a distinct relative increase in potassium.

HERRMAN SPORFF (Munich) emphasizes that the irrigation of a wound with acid or alkaline fluid is not to be compared with dietetic treatment. The effect of the diet is possibly weaker at first but is more permanent. An acid diet has a cleansing action on wounds.

DOERFLER recommended for pus diseases of the skin the use of calcium phosphate and calcium lactate in powder form. In cystitis it he gets phosphoric acid fifteen drops in water several times a day, or ammonium chloride ten parts to 1 of his dried parts one tablespoonful three times a day.

But (Berlin) stated that alkaline reactions have the same effect because it is the inflammation which causes the pain but that of inflammation. While he agrees that the study of scientific method to test out every theory he does not believe that everything depends upon the hydro-given analysis.

REICHEL (Chemnitz) calculated experimentally the percentage of the perfringens to 1811 which was shown that a mals with increased calcium content in the blood serum to 11 feet by pus-producing cocci than those with a lower blood alkalinity.

METLER (Gr) reported his experiences with  
organism free bacterial plate method as a result of  
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T h e c u l a t i o n f t h e u a s e r t y c l a n t N o c t e s  
J J m l m e t h r 19 7 x 1 5

A m l b a t n f t h u r e m e t r f y G C O N T I  
A r d t a l u r l 19 7 4

T r u e h r o n u r m i t p a t h e n e a l t a l m n t  
C I W L O O R S e m m e l l 19 7 57 R v

S o c d m l i n t e r n 9 7 91

T h m a u r e m e t r f l g l o m r u l n l t h e g l m r u l a r  
v a s e l i n m p e n t r y h y p e r t h y f t h k i n e a  
p e r m n t l u l y f b r e c t r l l l i n k m 19  
x 102 h 34

H y l e n p h n t h m y i l n l l r m n l m o r t  
e m A l a r r A r d d m a l d n t d r g n e s  
g e t a u n 10 85

T h e d g n o r f l r e p l a m l y p e l o g p h y C l a s s  
e m J 1927 x 89

T h e l y d i g n f n l t u m b y p y e g r a p h y J  
S L E A h e p e c u l i d 9 7 00

A case f a c r o u c y s t f i f e k f e y J C A S T A S O a n l A  
A S T R A I D h e r e p e r i l a d e s 1927 8

T h p a t h o g e n e s f a m a t u r n i j u r y A R L A D O  
J d u r o l m e d e t h r 1927 x ii 3

I j l i t C H L E V I N A r m y M d L o n t 19 7 h  
312

T h e g e r a l r e a c t i o n s e s e d b y p l u L E V Y S O L A I  
a n l M I R A I I r e s e m b l i r 9 7 x r e 503

T h p h a n p y e l n p l n i a d r e l u h u  
J T r i t e r B l m e m d o c m e d d h o p d P a 9  
xi 059

A c u t u b a c u t e a l h r o c n e p h r o p y l i s M  
D I R A V E N A c h m a l d u r o l 1927 411

R e n a l l i t u s f t h p r e n d i b e r u l o u s f r m P  
L E V Y D R A V E N d M a J d r o l m e d e t h r 19 7  
x i 543

A n u r a d t e p h r o l i t h a L Q U A N T A R u  
m e l 1927 i 455

A d s c u f t h r e c a s e f b i l i t i k i d n y c a l u  
I J O P P E N H E I M A C l m d W e s t M e d 92 i  
190

A R i a s t a f s o l r g n i t o u r i n a r y p r l m e  
P C A R O L O R a d i o l o g y 19 11 04 [562]

I j l y g r a p h y i n r e a l t b e r c u l o W M K e s  
R a d i o l o g y 19 7 i s 109 [562]

T h v a l u e f j o u e t r o g r a p h y a s d a n o t a c c d  
A J O C O R a n d A K E M M E r R a d i o l o g y 1927 i [562]

R n a l t b e r c u l o c a s e r e p o r t L F R A N K K t y  
M J 1927 x v 419

T h e t u b e r c u l o u p o l y p s t k i n e y E C H E R T S  
T r a n s a n d M u r n t J d u r o l m e d e t h r 1927  
xx i 215

I a r t i a l c l n n c a s e f r e n a l t b e r c u l o B o r  
c i a s a n d M e i n J d u r o l m e d e t h r 19 7 xii  
545

N e p h r e c t o m y f n a l t u b e r c u l i u d e s o n r e a l  
f r a g i l i t y H L A G O S A c h s o c m e d i d a p m a s o 19 7  
i 37

I n s t a g a t w i t h e g a r d t p e r m i n n e u a f t e r p e r a  
t m f r r n a l t b e r c u l o r e p o r t t h v a l e f f a p e  
u l t r e s f t h e t b e r c u l o a l s y t h e L o e n e s t m e t h o d  
f t h i p u r p o s e J V S L A N E L t s c h r f u r o l C h r  
19 7 xii 39

O u r u l r a n n u e r a r y c l b r a t g o u r t n i l o n  
t r a l s r g r y J J C A E T K J l i 1927 xxi  
137

T h e o l l a t a l t e r l e r u l t n o f t h h m a n u r e t  
C F O U W O L T L t o h f G e l t h u C y k 1927 x 4  
[563]

T h e c a s e s f r e d p l t e d b i d u r e t R O C H a n d  
T h e a s o r J d r o l m e d e t h r 9 7 xxi 54

T h p o c e s f f r m a t i n f o y u d i t a l t i d e c a l  
n d f t h u r e t e r f d i c u l a t a l t e t a l t n m  
R C H W A L T U r o l C t a R v 19 7 xi 499

C n d r a t n a s e f m l t p l e l t h f t h  
u r e t e r J L E K A S A v p e a l d d e s 9 7 J  
L r o p y o n e p h r o u d u l a p p l o m a t h r e t a l  
m t A C A S S O L O h u r 9 7 x 53



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9 7 xliu 573  
Autohæmorrh py in inguinal adenit G CAMACHO  
Repet d med y curu 19 7 xl 299

M l e n a n t l y m p h g r a n u l m a t o i s G M I L L E R R i  
f m a m d 19 7 xl 460  
Hodgk n s d i c a s a b d m i n a l t y p e R S B O L F S  
I l l n o i s M J 1927 l u 2  
Abdominal lymph gra ulomat is maligna (Hodgk n s  
d e a s ) i t h v e y h g h b l o d m o p h i a F P W E B E R  
I r c R v Soc M d L o d 19 7 x x 1337  
A c a s e of H o d g k n s d i c a s w i t h p l e u r a l m e m t a n  
and amyloid deg rat on of the h e O C R O U Z O V I  
B E R T R A N D a n d A L E I U R F B u l l e t m e m S o m e d d  
l o p d P a r 192 l i u 60

## SURGICAL TECHNIQUE

Operative Surgery and Technique  
Post operative Treatment

Rec g a n d a n m n g e m n t f the ca d i a s c u l a r  
u r g a l i k A L P H E L P S A n e s & A n a l 9 7 9  
Th o p e b u l t y f i n f a t s I H A G E N C H A r h 9  
l i n . C h a r 937 c x l 635  
The p a r t u n f p t i c t f o p e r a t W F M  
M I C H E L L L a n c t 1927 c c v 270 [580]  
A e r v i p o t i s i n p o p e r a t e a d p o t p e r a t i  
m a n a g m n t R O S T S I T g d d u t c h G f C h  
B e r l i n 927 [581]  
The p o s b i l i t y f p o p i n v a n a t n P  
M o r a n d B u l l e t m e m S o c d c h i r u r g n s d l l r 9 7  
x i u 3 8  
O b s e r v a t i o n s a n t h f l e c t i g l y c o u a n r g H  
A B R E C F H I P W E L L a n d J W R I S H A S u g v  
l i n 78  
The i m p o r t a n c e f o p e r a t g o o m c o t l S I F I t  
A m J S u g 927 u 39  
A m p r e d t h q e f t h e r m o l o f u n k l f  
t h f a n d c k M L A G A R D E A m J S g 9 7 i 3  
A n w a n d o u g u a l m e t h d n t h e r t m t f d l a y d  
k a t r i z t o G J G O N Z A L E R v A s m e d g t  
19 7 x l 240  
P o b l i m t h t e m n t f s p e r f i a l b a n I S  
R A V I N A t t l t i c M J 19 7 679  
P l a m p o t e i n s i n c u t a c o u s b a s E C D A V I D S v  
a n d C W M A T T H E W A r h S u r g 9 7 65  
T w o a s e s i l l u s t a t i n g t h u l p h l f p C J  
M A R S H A L L P r o c R o y S o c M d L o d 9 7 x 1 f  
A n w T h u s c h g t a z o r A G B Y T M A J A m  
M A s 19 7 l x x i 451  
D e r m o - e p i d r m a l g r a f t i n g g o d t A L G L V E J d  
c h 19 7 x x 650 [584]  
The r e p o f a l a g w u n d f t h e l f f t h l g b y  
t u b u l a r f r a m s e d f r m t h g h M L H E L R E V d P  
M o u r e B l t m e m S o c n t d c h u 19 7 l i  
P a c t i a l e p n e c w i t h c a d a l E M K W  
k i n W h s c h 927 l 17  
The f i t f g y n r g n o n t h b l o o d p s s d  
p u l s e i n m a n W Z O R A K l W h n h 9 7 4  
T h r c a s e s o f i n t r a c d i a i t n f d a l n f  
e a m m a t n f t h a t J D E L A G E N I E R e d H  
H A R T A v B u l l e t m e m S o c a t d h 9 7 l u 65  
C d u c t m n l a t o n b y m g n d d n a l n f s p  
p r e n d m u n i t o w i t h t r p o r t f a s e E H G R E Z E  
A m J O b t & G y n e 19 7 i v 3  
E x p e i e n c e s w i t h t h i n t m c u l a n j t n f l b e l n  
( o b e l a ) i n p o s t a n e t h t s t g 1 3 3 c a H H E L E N  
D A L L Z e t l b l f G y n a e 9 7 i 9  
T h o l o f l i k a l i n a n d s i s p o t o p r t m p h  
c a t i o n s A F U E N T E s d P R U B I N O S e m n m e d 9 7  
x l i v 2 7

I t p r a t i v e n u t r o g n r e t n t i o D E R O U V I L L E a n d A L  
L B u l l S o d b t t d e g y n e c d e P r 1927 x v i 344  
T l c o m m n c a u e s a l t h e p r v n t n o f r e a c t i o f o l  
l i n c n t r a u n j c t n s o f g l u c ( d i t r o s e ) s o l u t i o n  
l T I T L S n d P D O W S A m J O b t & G y n c 192 i v  
8 [584]  
L p e c t e d d t h s i n t h p t p r a t i v e p r o d A R  
S n r r n d A D F A S E R B i t M J 19 7 i x x o o i [584]  
T h u s f p o t o p t i v e a l p e r p l t h r o m b i  
m b o l c o t l b t n b d o n c l i n l o b s e r a t i o n s P  
S C H U M A H E A h f G y n e c 19 7 x v i 9 9 [584]

Antiseptic Surgery Treatment of Wounds  
and Infections

I t i t t r y e m a l s n d d i s c u s i o n o n v a c i n t h r a p y  
W G L i r o v E d i n b u r g h M J 9 7 x i v M d C h i  
S o F u n b u r g h [585]  
C u t a n e u p o r o t c h t e s t e d b y a n a u t o a c c i a  
l u t i t u t o t h e s t u d y f t h c t n f v a c i n t h r a p y  
A S E A R V F C O I N C n d T R E M O I S T B u l l e t m e m  
S o m e d d hōp d P a r 1927 l 6 9  
T h b e s n d e s l t s o f a l k h z t n n d a c d i f i c a t i o n  
i s r g l i f l a m m a t y c o d i t n s v o v G a z a a n d  
B R A N D S T a d d e u t c h G s f C h u r B e r l i n 19 7  
[586]  
C i l t i s o n t h e t t m n t f a n t h r a T A N K E  
L E N A h S o m d d e V a l p a r a o 1927 l 65  
T h t a n g m t o f t e t a u A M A R T I R I R i f t m m e d  
9 7 x l 577  
T h r u l n e f t e p t o c c G G I L A r h d e m d  
n u g y p e c t 9 7 x i i i 7 6  
T h f g n e v l c h a t e r o f s t p h y l c o c a h e c s  
i t p a l c o t s N I C O L A S B u l l t m e m S o c d  
b r u g n d e P a 927 x l 303  
T h t a t m t o f p o r a l s t p h y l m y c o t i c i n f e c t i o n s  
T B E D E K M W e c h c h r 9 7 v i 352  
I n f c t n f t h h a n d I N K E R N S K n u c k y M J  
19 7 445  
T h t r t m t f f r u n c u l o s i s b y d i a t h e r m y J H U N T E R  
J L a y n g o l & O t l 927 l u 54  
A w c p t o f t h m n g m n d o f c a r b u n c l s A D  
W I L L M O T T h n t k y M J 927 x x v 44  
T n p a t s e p t d i g s H A L T R A U T E R G y n e c  
t b t 927 x v 36

## Anæsthesia

T h h g u n s t a t s f a a e s t h e t i c s G P M U L L E R  
A n S e g 9 7 l x v i 44  
A n a d d n e u g o n n d t h e a e t h e t s t A  
P I M R O S E C a d i a n M A s J 19 7 v i i 886  
T h a n t h p l e r n c o f A m e c a n s g e o n E  
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